

## **Neuronal mechanisms underlying sex-hormone dependent switching of sexual receptivity**

### **Results:**

Animals should choose appropriate actions at the right time in order to survive or reproduce successfully. During social interactions, animals must choose either being affiliative or antagonistic. It is well established that the reproductive cycle modulates this choice, and that female rodents show increased sexual receptivity when they are fertile. The ventrolateral part of the ventromedial hypothalamus (VMHvl) is thought to be involved in the neural control of such behavioral change. However, it remains unclear how the orchestrated activity of the VMHvl neurons produces different behaviors depending on the reproductive phase. To address this issue, we performed multiple single-unit recording experiments across the reproductive cycle in female mice during social interactions. We found that the proportion of male responsive neurons in the VMHvl increases during the sexually receptive phase. This was not the case with the female-evoked responses. These results suggest that a change in the proportion of male-responsive neurons facilitates transmission of male information to the downstream brain regions, which may lead to increased sexual receptivity.

### **Area(s) of interest:**

Systems neuroscience

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