
**МАТЕРИАЛЫ КОНФЕРЕНЦИИ
И ШКОЛЫ**

**STUDIES OF THE HIPPOCAMPUS IN WILD MICROMAMMALS:
CHALLENGES AND APPROACHES**

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The modern understanding of the functions of the hippocampus is largely based on the results of experimental studies in laboratory rodents. Detailed brain atlases, a wide range of methods for assessing neural activity, and genetic approaches have made it possible to achieve significant advances in the study of the hippocampus. One of the key functions of this structure is the control of spatial behavior (mapping the environment and assessing its changes, spatial memory, navigation, etc.). The discoveries of recent years indicate the need to go beyond the classical laboratory approaches to achieve progress in the study of the neurobiological mechanisms of these processes. The areas of habitats of many animals in nature significantly exceed the size of mazes and laboratory arenas, which implies a higher load on the brain structures that provide spatial navigation. In addition, the features of ecology, sensory systems make it possible to use species of wild animals as natural models for studying the functions of the hippocampus. Studies of the brain and, in particular, the hip-

pocampus, in small mammals are few, for many species there is no data even on the size of the brain, for some species, for example, the common shrew (*Sorex araneus*) and the bank vole (*Clethrionomys glareolus*) there are few studies (Yaskin, 1994, Yaskin, 2013, Lazaro et al., 2018, etc.). There is very little information about the spatial memory of rodents differing in ecology (Pleskacheva et al., 2000). Bank voles, shrews, and others are capable of homing, which makes it possible to study the role of the hippocampus in this process. For a long time, in rodents of the same species, differences in the size of the hippocampus of males and females, differing in the size of home range, were described (Sherry et al., 1992); seasonal and age-related variations in the size of the brain and hippocampus were found (Yaskin, 2009). These and other features of animals from natural populations provide a unique opportunity for neurobiological research at the modern technological level.

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