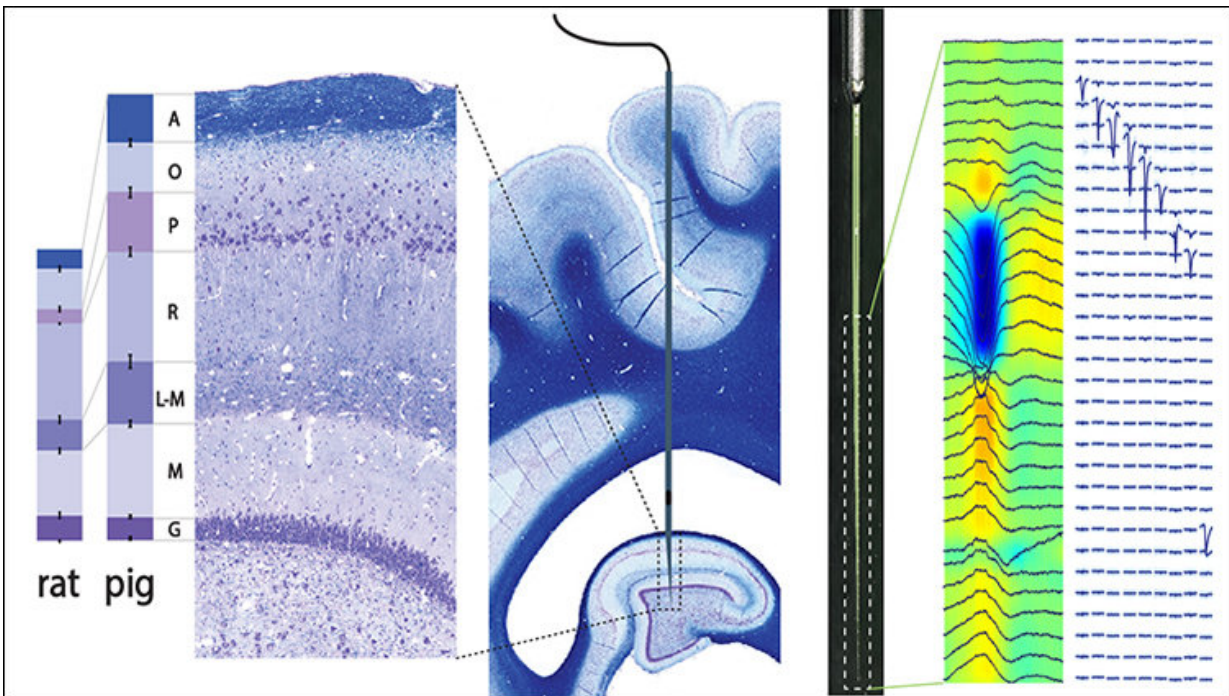


Characterizing pig hippocampus could improve translational neuroscience

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A comparison of the laminar structure in the pig and the rat hippocampus revealed conservation of the layered structure, with a remarkably small increase in the overall layer width given that the pig brain is 50X larger in mass. Recordings using a laminar silicone probe with 32 electrode channels half the width of a human hair revealed laminar electrophysiology and single neuron activity with features of both rodent and primate hippocampus (electrode photo courtesy of NeuroNexus Technologies). Credit: Ulyanova et al., *eNeuro* (2018)

Researchers have taken further steps toward developing a superior animal model of neurological conditions such as traumatic brain injury and epilepsy, according to a study of miniature pigs published in *eNeuro*. The results establish the pig as a promising preclinical research model for hippocampal-dependent human memory disorders.

The structure and function of hippocampus has been extensively studied in rodents and non-human primates, animals that together enable experimental manipulation and a way to address species differences. Domesticated miniature pigs—developed as laboratory animals for their smaller size and comparative anatomy—have recently emerged as a middle ground model with potential to bridge the gap between rodents and non-human primates in a single, behaviorally complex organism.

Building on initial neuroimaging studies of the pig brain, John Wolf and colleagues developed new electrophysiology techniques to probe the structure and record neural activity of the Yucatan miniature pig hippocampus. With this approach the researchers confirmed features of the pig hippocampus comparable to those of rodents and [non-human primates](#), allowing for future investigations of translational disease models involving this important brain structure.

More information: *eNeuro*, [DOI: 10.1523/ENEURO.0102-18.2018](https://doi.org/10.1523/ENEURO.0102-18.2018)

Provided by Society for Neuroscience

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