

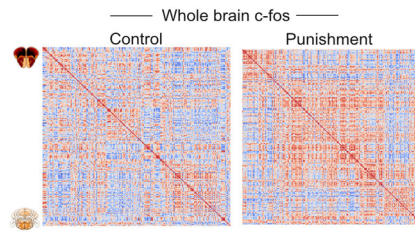
This Week in The Journal

Improving Electrophysiology Data Quality

Jonas Oberste-Frielinghaus,
Aitor Morales-Gregorio, Simon Essink,
Alexander Kleinjohann,
Cristiano André Köhler et al.

(see article [e0295262026](#))

When measuring widespread activity from neurons using multielectrode arrays, researchers frequently detect artifacts—or unwanted electrical noise—that can interfere with assessments about neural signals. In this issue, Oberste-Frielinghaus and colleagues explored ways of identifying and quantifying hypersynchronous artifacts within multichannel recordings from two rhesus macaques and a mouse. The authors modeled these artifacts as being caused by electric cross talk between recording channels and suggest that these artifacts can be removed via zero-phase component analysis. According to the authors, this removal method may help many laboratories improve the quality of



Whole-brain c-Fos Pearson's correlation matrices for Punished and Control groups. See Gregory et al. for more information.

multielectrode recording data because this type of artifact frequently occurs in various recording setups.

How Punishment Learning Changes the Brain

Alexandra V. Gregory,
James Diefenbach, Eun A. Choi,
Jason Soo, Jessica Chen et al.

(see article [e0925262026](#))

Gregory et al. used mice to assess how learning from punishments changes the brain. The authors used a variety of methods in their approach, including behavioral experiments, whole-brain activation mapping, spatial transcriptomics, computational analyses, and chemogenetic inhibition. Punishment learning altered how regions across the brain work together, essentially reorganizing systems in the brain so that mice could learn from unpleasant consequences. The authors also identified transcriptional programs in specific neuron populations that were recruited following punishment learning. For mice to learn from consequences, three brain regions were required: the basolateral amygdala, the zona incerta, and the rostral linear nucleus of the raphe. According to Gregory and colleagues, this work advances understanding of how the brain processes punishment and learns from unpleasant experiences.

This Week in The Journal was written by Paige McKeon
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