

Matteo Caleo, PhD

Matteo Caleo is the Director of Research at the CNR Institute in Pisa, and a Professor of Physiology at the University of Padua, Italy.

The main goal of his laboratory is to characterize the plastic modifications of neuronal connections occurring during the development and in pathologies of the central nervous system. The laboratory has significant expertise in activity-dependent development and plasticity of the rodent visual system. This expertise is applied to the study of circuit maturation in neurodevelopmental disorders.

Recently, the range of topics and techniques of the lab's research has expanded to include studies on different pathological conditions that can affect the brain, including tumors, stroke, and epilepsy. A characteristic feature of the laboratory is the exploitation of specific bacterial toxins (such as botulinum neurotoxins, tetanus neurotoxin, and cytotoxic necrotizing factor) for studies of brain physiology and pathology. The lab's research relies on combining different electrophysiological (single-unit, local field potential, and electroencephalogram recordings), optogenetic/chemogenetic, neuroanatomical, behavioral, and neurochemical approaches in vivo.