

# Resource Summary Report

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## Institute of Experimental Medicine of the Hungarian Academy of Sciences: Laboratory of Cerebral Cortex Reserach

RRID:SCR\_008041

Type: Tool

### Proper Citation

Institute of Experimental Medicine of the Hungarian Academy of Sciences: Laboratory of Cerebral Cortex Reserach (RRID:SCR\_008041)

### Resource Information

**URL:** <http://www.koki.hu/main.php?folderID=903>

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**Description:** The aim of this laboratory is to understand how information is encoded in specific spatiotemporal activity patterns and structural configurations at the circuit, cellular, and molecular levels in the hippocampus, thereby enabling the process of memory. A major task is to find the neuronal codes of internal representations of memory items and the mapping rules between the levels of gene expression/proteins synthesis and the level of cognitive processing. Novel combinations of approaches, including multiple single-cell recording technology, patch-clamp electrophysiology, neuroanatomy/neurochemistry at the cellular and subcellular levels, and computational models are employed to test specific hypotheses about that mapping process (such as local circuit anatomy and activity-dependent short-term and long-term synaptic plasticity). Collaborations within the Institute allows the group to also incorporate gene targeting methods and behavioral learning/memory tests in their methodological repertoire. The laboratory has been focusing on the normal and pathological (epileptic, ischemic) activity of cortical networks, with particular attention to the generation of behaviour-dependent population discharge patterns (theta and gamma oscillations, hippocampal sharp waves). Anatomical, in vitro and in vivo electrophysiological, pharmacological and molecular techniques and modeling are combined to elucidate the functional roles of inhibitory cell types in the control of population synchrony and synaptic plasticity in the hippocampus, their local and subcortical modulation via selective afferent pathways (GABAergic and cholinergic septal, as well as serotonergic raphe input) and pre- or postsynaptic receptors. An expanding new direction of research is related to the role of endocannabinoid signaling in the activity-dependent modulation of GABAergic and glutamatergic transmission, and its involvement in anxiety-like behavior.

**Synonyms:** KOKI

**Resource Type:** laboratory portal, data or information resource, organization portal, portal

**Keywords:** electrophysiology, experimental, expression, gaba, gene, anatomy, anxiety, behavior, cell, cellular, circuit, cognitive, computational, cortical, hippocampus, laboratory, mapping, medicine, memory, molecular, neuroanatomy, neurochemistry, plasticity, processing, protein, serotonin, spatiotemporal, structural, subcellular, subcortical, synaptic

**Resource Name:** Institute of Experimental Medicine of the Hungarian Academy of Sciences: Laboratory of Cerebral Cortex Reserach

**Resource ID:** SCR\_008041

**Alternate IDs:** nif-0000-10257

**Record Creation Time:** 20220129T080245+0000

**Record Last Update:** 20260731T042750+0000

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## Ratings and Alerts

No rating or validation information has been found for Institute of Experimental Medicine of the Hungarian Academy of Sciences: Laboratory of Cerebral Cortex Reserach.

No alerts have been found for Institute of Experimental Medicine of the Hungarian Academy of Sciences: Laboratory of Cerebral Cortex Reserach.

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## Data and Source Information

**Source:** [SciCrunch Registry](#)

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## Usage and Citation Metrics

We have not found any literature mentions for this resource.