



INSTITUTE OF EXPERIMENTAL MEDICINE

www.koki.hu/english

- **Founded in 1952**
- **Located in Budapest**
- **Member of the Eötvös Loránd Research Network**
- **Hungarian Academy of Sciences Centre of Excellence**
- **9000 m² area**
- **More than 70 laboratories and seminar rooms**
- **15 research groups**
- **Common grants & publications from 15 countries on 3 continents**
- **21 visiting scientists**
- **212 employees including 127 researchers**
- **67 publications (2019)**
- **7 815 citations**
- **Impact Factor: 470.7**

The **Institute of Experimental Medicine** is open to further joint research activities at the international level.

For any additional information on possible international cooperation please contact Mr. Balázs HANGYA PhD at hangyab@koki.hu.

Address: 1083 Budapest, Szigony utca 43.
Phone: +361 210 9400
E-mail: info@koki.hu

The **Institute of Experimental Medicine** (IEM) was founded in 1952, and it has undergone a dynamic development over the last 20 years. The IEM is dedicated exclusively to **basic biomedical research in the field of neuroscience**. This includes studies on neurotransmission, learning and memory, neuronal development, anxiety, depression, schizophrenia, aggressive behaviours, ischemic and epileptic brain damage, neurodegenerative disorders, and the central and peripheral control of hormone secretion.

The research teams of the Institute employ **multidisciplinary approaches**: traditional, well-established methodologies (e.g. anatomy, electrophysiology, neurochemistry and pharmacology) are combined with novel approaches in cellular and molecular biology such as the use of transgenic animals with in vivo calcium imaging and optogenetics, as well as with super-resolution microscopy, patch clamp, 2-photon microscopy, calcium imaging techniques and behavioural technologies.

The Institute has extensive **collaborations with pharmaceutical companies**, which allow the immediate exploration of the potential use of basic research results of the Institute in the development of new drugs and strategies in pharmacotherapy. Main company partners: Gedeon Richter Plc., EGIS Plc., Servier International, Pfizer Hungary, and ImmunoGenes Kft.



Scientific Departments

- Molecular Pharmacology
- Cellular Neuropharmacology
- 3D Functional Network and Dendritic Imaging
- Endocrine Neurobiology
- Molecular Neuroendocrinology
- Integrative Neuroendocrinology
- Molecular Cell Metabolism
- Reproductive Neurobiology
- Cerebral Cortex Research
- Thalamus Research
- Cellular Neurophysiology
- Network Neurophysiology
- Neuronal Signaling
- System-Neurobiology
- Molecular Neurobiology
- Neuroimmunology
- Translational behavioural neuroscience
- Subcortical Modulation
- Biological Computation

Human resources

The average number of employees is 212 including 127 researchers. 42% of the researchers are women. 2 are Full or Corresponding Members of the Hungarian Academy of Sciences, 14 hold the title of Doctor of the Hungarian Academy of Sciences, and 74 have a PhD or are doctoral candidates. The rate of young researchers (under 35) is 41%. The Institute supports the **international mobility of researchers**, hosting several foreign scientists per year, and a similar number of IEM researchers visit leading laboratories in the world. Our aim is to raise the number of foreign researchers working in our research groups.

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Main achievements

- ABHD4-dependent developmental anoikis safeguards the embryonic brain. *Nat Commun.* 2020 Aug 31;11(1):4363. ([link](#))
- Distinct synchronization, cortical coupling and behavioral function of two basal forebrain cholinergic neuron types. *Nat Neurosci.* 2020 Aug;23(8):992-1003. ([link](#))
- Impact of functional synapse clusters on neuronal response selectivity. *Nat Commun.* 2020 Mar 16;11(1):1413. ([link](#))
- Microglia monitor and protect neuronal function through specialized somatic purinergic junctions. *Science.* 2020 Jan 31;367(6477):528-537. ([link](#))
- Median raphe controls acquisition of negative experience in the mouse. *Science.* 2019 Nov 29;366(6469):eaay8746. ([link](#))
- Brainstem nucleus incertus controls contextual memory formation. *Science.* 2019 May 24;364(6442):eaaw0445. ([link](#))
- A highly collateralized thalamic cell type with arousal-predicting activity serves as a key hub for graded state transitions in the forebrain. *Nat Neurosci.* 2018 Nov;21(11):1551-1562. ([link](#))
- Fast 3D Imaging of Spine, Dendritic, and Neuronal Assemblies in Behaving Animals. *Neuron.* 2016 Nov 23;92(4):723-738. ([link](#))
- Analogue modulation of back-propagating action potentials enables dendritic hybrid signalling. *Nat Commun.* 2016 Oct 5;7:13033. ([link](#))
- Functional Properties of Dendritic Gap Junctions in Cerebellar Golgi Cells. *Neuron.* 2016 Jun 1;90(5):1043-56. ([link](#))

