

RICHÁRD FIÁTH

Integrative Neuroscience Research Group
Institute of Cognitive Neuroscience and Psychology
Research Centre for Natural Sciences
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EDUCATION

- 2009-2017 János Szentágothai Doctoral School of Neurosciences, Semmelweis University, Budapest, Hungary: PhD (theoretical medicine)
Dissertation: Electrophysiological analysis of the ketamine/xylazine-induced thalamocortical slow wave activity recorded in vivo in rats
Supervisor: István Ulbert, MD, PhD
- 2010-2012 Pázmány Péter Catholic University, Faculty of Information Technology and Bionics, Budapest, Hungary: Bionic computer engineering postgraduate specialization programme
- 2004-2009 Pázmány Péter Catholic University, Faculty of Information Technology and Bionics, Budapest, Hungary: MA (computer engineer)

RESEARCH EXPERIENCE

- 2020- **Research Centre for Natural Sciences**, Postdoctoral fellow
Investigation of spontaneous and evoked propagating slow waves in the thalamocortical network during sleep and anesthesia
- 2017-2021 **Research Centre for Natural Sciences**, Research fellow
Hungarian Brain Research Program 2.0
- 2017-2020 **Research Centre for Natural Sciences**, Postdoctoral fellow
Classification of cortical neurons based on their two-dimensional action potential waveforms recorded with high spatial resolution
- 2014-2017 **Research Centre for Natural Sciences**, Graduate researcher
Hungarian Brain Research Program
- 2013-2017 **Research Centre for Natural Sciences**, Graduate researcher
NeuroSeeker European Union FP7 project: Investigation of local and global cortical circuits with advanced neural probes for high-resolution electrophysiological monitoring and optogenetic stimulation

GRANTS AND AWARDS

- 2020- Postdoctoral excellence programme grant awarded by the Hungarian National Research, Development and Innovation Office
- 2019 Publication Prize awarded by the Institute of Cognitive Neuroscience and Psychology, Research Centre for Natural Sciences
- 2018 EFOP 3.6.3 Publication Prize awarded by Pázmány Péter Catholic University, Faculty of Information Technology and Bionics
- 2017-2020 Postdoctoral excellence programme grant awarded by the Hungarian National Research, Development and Innovation Office
- 2012-2013 Predoctoral scholarship, Semmelweis University
- 2012 Presentation Award, Semmelweis University, PhD Scientific Days

TEACHING EXPERIENCE

2011- **Pázmány Péter Catholic University, Faculty of Information Technology and Bionics**
Guest Lecturer and Supervisor of undergraduate students

SKILLS

- Electrophysiological techniques (in vivo extracellular and EEG recordings)
- Optogenetic methods
- Spike sorting
- Basic histological techniques
- Programming languages: MATLAB (advanced), Python (intermediate), C/C++ (basic), LabVIEW (basic)

PUBLICATIONS

22 peer-reviewed publications, > 430 citations, total impact factor: ~94, h-index: 11

First author publications:

Fiáth R, Meszéna D, Somogyvári Z, Boda M, Barthó P, Ruther P, Ulbert I. Recording site placement on planar silicon-based probes affects signal quality in acute neuronal recordings. *SCIENTIFIC REPORTS* 11: 2028 (2021)

Fiáth R, Márton AL, Mátyás F, Pinke D, Márton G, Tóth K, Ulbert I. Slow insertion of silicon probes improves the quality of acute neuronal recordings. *SCIENTIFIC REPORTS* 9: 111 (2019)

Fiáth R, Raducanu BC, Musa S, Andrei A, Lopez CM, Welkenhuysen M, Ruther P, Aarts A, Ulbert I. Fine-scale mapping of cortical laminar activity during sleep slow oscillations using high-density linear silicon probes. *JOURNAL OF NEUROSCIENCE METHODS* 316: 58-70 (2019)

Fiáth R, Raducanu BC, Musa S, Andrei A, Lopez CM, van Hoof C, Ruther P, Aarts A, Horváth D, Ulbert I. A silicon-based neural probe with densely-packed low-impedance titanium nitride microelectrodes for ultrahigh-resolution in vivo recordings. *BIOSENSORS & BIOELECTRONICS* 106: 86-92. (2018)

Fiáth R, Hofer KT, Csikós V, Horváth D, Nánási T, Tóth K, Pothof F, Böhler C, Asplund M, Ruther P, Ulbert I. Long-term recording performance and biocompatibility of chronically implanted cylindrically-shaped, polymer-based neural interfaces. *BIOMEDIZINISCHE TECHNIK* 63: 301-315. (2018)

Fiáth R, Beregszászi P, Horváth D, Wittner L, Aarts AA, Ruther P, Neves HP, Bokor H, Acsády L, Ulbert I. Large-scale recording of thalamocortical circuits: in vivo electrophysiology with the two-dimensional electronic depth control silicon probe. *JOURNAL OF NEUROPHYSIOLOGY* 116: 2312-2330. (2016)

Fiáth R, Kerekes BP, Wittner L, Tóth K, Beregszászi P, Horváth D, Ulbert I. Laminar analysis of the slow wave activity in the somatosensory cortex of anesthetized rats. *EUROPEAN JOURNAL OF NEUROSCIENCE* 44: 1935-1951. (2016)