

CURRICULUM VITAE

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NAME: Balázs Hangya
DATE OF BIRTH: 28/10/1980
PLACE OF BIRTH: Budapest, Hungary
NATIONALITY: Hungarian
MAILING (OFFICE) ADDRESS:
Institute of Experimental Medicine
Szigony utca 43.
H-1083 Budapest
Hungary

POSITIONS:

2015 - Principal Investigator, Institute of Experimental Medicine, Hung. Acad. Sci., Budapest, Hungary (from 1 Sep 2015)
2010 - 2015 Postdoctoral Fellow, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, USA
2006 - 2010 PhD Student, Institute of Experimental Medicine, Hung. Acad. Sci., Budapest, Hungary (János Szentágothai School of Ph.D. Studies, Semmelweis University, Budapest, Hungary)

FELLOWSHIPS:

2013 - 2015 Marie Curie International Outgoing Fellowship
2011 - 2012 Swartz Fellowship for Theoretical Neuroscience

EDUCATION:

2006 - 2010 János Szentágothai School of PhD Studies, Semmelweis University, Budapest, Hungary; degree: PhD (summa cum laude)
2001 - 2007 Eotvos Lorand University, Budapest, Hungary; Mathematics Programme, specialization in Probability Theory and Statistics; degree: MSc (excellent)
1999 - 2006 Semmelweis University, Budapest, Hungary; Medical School; degree: MD (summa cum laude)

AWARDS AND MAJOR GRANTS:

2017 - 2022 ERC Starting Grant
2015 - 2020 'Momentum' Starting Grant of the Hungarian Academy of Sciences
2011 'Junior Prima' Award for young Hungarian scientists (7000 Euros)
2010 EBBS-FENS Student Award granted by the European Brain and Behaviour Society

JOURNAL REVIEWING:

Science, Nature Neuroscience, Neuron, Nature Communications, eLife, PLOS Biology, Science Advances, Journal of Neuroscience, Scientific Reports, Cerebral Cortex, PLOS Computational Biology, Journal of Neurophysiology, Journal of Physiology, European Journal of Neuroscience, Neuroscience, Psychopharmacology, Frontiers in Neuroscience, Neural Networks, Journal of Computational Neuroscience, Progress in Neurobiology, Communications Biology, IEEE Access, Journal of Visualized Experiments, PCI Neuroscience

GRANT REVIEWING:

European Research Council, Biotechnology and Biological Sciences Research Council of the UK, Agence Nationale de la Recherche of France, National Medical Research Council of Singapore, National Research, Development and Innovation Office of Hungary, Hungarian Academy of Sciences

EDITORIAL BOARD:

2021	Frontiers in Neural Circuits, Guest Associate Editor
2020 -	Frontiers Decision Neuroscience, Associate Editor
2019 -	Peer Community in Neuroscience, First Recommender
2016 -	European Journal of Neuroscience, Review Editor
2015 - 2020	Frontiers Decision Neuroscience, Review Editor

ROLE IN COMMITTEES:

2021	Member of the Program Committee for the FENS Forum in 2022 (Paris)
2020	Evaluation Committee member for the French National Research Agency (ANR, AAPG 2021 generic call)
2020	Panel member for National Research, Development and Innovation Office Postdoc Grants (OTKA-PD)
2020	Review panel member at Semmelweis University Student Research Conference
2020	Review panel member at Semmelweis University PhD Conference
2020	FKNE Ph.D. Thesis Prize Selection Committee member
2018	FKNE Ph.D. Thesis Prize Selection Committee chair
2016 - 2018	FENS-Kavli Network of Excellence board member responsible for outreach
2016 - 2020	FENS-Kavli Network of Excellence
2013 - 2016	Transylvanian Neuroscience Summer School Selection Committee member

THESIS COMMITTEES:

2 BSc theses reviewer in computer science; 1 MD thesis reviewer; 9 PhD theses reviewer (2 in computer science, 1 in mathematics, 7 in neurobiology) in Hungary, Aarhus University in Denmark, SISSA at Trieste Italy, Oxford University UK, Slovak Academy of Sciences in Bratislava Slovakia

MENTORING:

10 BSc theses (9 in biology, 1 in computer science), 2 MSc theses (1 in medical physics, 1 in computer science), 2 MD theses

CONFERENCE ORGANIZING:

2022 The Weizmann-KOKI Brain Sciences Workshop, Rehovot, Israel;
Organizing Committee member

2021 FENS Regional Meeting, online: symposium chair

2020 IBRO Workshop, Szeged: symposium chair

2019 FENS Regional Meeting, Belgrade: symposium chair

2019 Systems Neuroscience and Decision Making (SYNDI), third edition,
Aarhus, Denmark: organizer

2018 Systems Neuroscience and Decision Making (SYNDI), second edition,
Tbilisi, Georgia: organizer

2017 Systems Neuroscience and Decision Making (SYNDI), first edition,
Radpuszta, Hungary: organizer

2017 FENS Regional Meeting, Pecs: symposium chair

TEACHING:

2019 - 2022 Eotvos Lorand University, MSc in Biology, Neurophysiology (3 lectures)

2017 - 2022 Lecture at Eotvos Lorand University on Cerebral Cortex (Neuroscience
Special Class)

2016 Lecture on Research Methodology at Corvinus University of Budapest,
Faculty of Economics

2016 - 2021 Lecturer at the Transylvanian Neuroscience Summer School

2016 - 2020 Lectures at Semmelweis University Doctoral School (Cortex PhD course)

2016 Lectures and workshop at Graduate School of Systemic Neurosciences,
Ludwig Maximilian University of Munich

2013 - 2015 Teaching assistant at the Transylvanian Neuroscience Summer School,
teaching electrophysiology theory and practice

2013 Judging at Long Island Science and Engineering Fair

2013 Mentoring at Long Island Afro-Academic, Cultural, Technological and
Scientific Olympics

2012 Judging at Long Island Afro-Academic, Cultural, Technological and
Scientific Olympics

2003 - 2005 Demonstrator in Physiology practice in the Institute of Human Physiology
and Experimental Research, Semmelweis University

INVITED TALKS:

2022 Pecs University, Pecs, HU; Institute for Computer Science and Control,
Budapest, HU; Albert Szent-Gyorgyi Conference, Budapest, HU;
Weizmann Institute, Rehovot, Israel

2021 Institute for Computer Science and Control, Budapest, HU; FENS Regional Meeting, Krakow, Poland (online)

2020 Harvard University, Cambridge, Massachusetts, US, online seminar; keynote lecture at the Hung. Neuroscience Doctoral Conference, Szeged, HU; IBRO Workshop, Szeged, HU; Leibniz Institute for Neurobiology, Magdeburg, Germany, online seminar; FENS-Kavli Network virtual conference

2019 DYNASNET Kick-off Seminar, Budapest, HU; FENS Regional Meeting, Belgrade, Serbia; Gordon Research Conferences, Les Diablerets, Switzerland; International Joint Conference of Neural Networks, Budapest, HU

2018 Chinese Academy of Sciences, Shanghai; NTNU, Trondheim, Norway; University of Zurich, Switzerland, Materials Research Society Spring Meeting, Phoenix, US

2017 Scuola Internazionale Superiore di Studi Avanzati, Trieste, Italy; Aix-Marseille University, France; Aarhus University, Denmark

2016 Ludwig Maximilian University of Munich, Germany; Annual Meeting of the International Behavioral Neuroscience Society, Budapest, HU; Annual Meeting of the Japanese Neuroscience Society, Pacifico Yokohama, Japan; Doshisha University, Kyoto, Japan; John Radcliffe Hospital, University of Oxford, UK; University College London Sainsbury Wellcome Center, London, UK; Renyi Alfred Institute of Mathematics, Hung. Acad. Sci., Budapest, HU; Research Centre for Natural Sciences, Hung. Acad. Sci., Budapest, HU; Institutio de Neurociencias, Alicante, Spain; Plenary lecture at the 1st Hung. Neuroscience Doctoral Conference, Budapest, HU

2015 Unil Lausanne, Switzerland; École polytechnique fédérale de Lausanne, Switzerland; Universitat Basel, Switzerland; University of Oxford, UK; City College New York, US; Central European University, Budapest, HU; Research Center for Natural Sciences, Hung. Acad. Sci., Budapest, HU; Wigner Research Center for Physics, Hung. Acad. Sci., Budapest, HU

2014 Harvard University, Cambridge, Massachusetts, US; National Institute of Aging, National Institute of Health, Baltimore, Maryland, US

2013 New York University, NY, US; Inst. Exp. Med., Hung. Acad. Sci., Budapest, HU

2011 Long Island Jewish Medical Center, New Hyde Park, NY, US

2009 Society for Future Medical Scientists, Frigyes Korányi College for Advanced Studies; Gedeon Richter Pharmaceutical Company, HU; Inst. for Psychology, Hung. Acad. Sci., Budapest, HU; Rutgers University, Newark, NJ, US

2006 Research Institute for Particle and Nuclear Physics, Hung. Acad. Sci., Budapest, HU

PUBLICATIONS:

36. Császár E, Lenart N, Cserép C, Környei Z, Fekete R, Pósfai B, Balázsfi D, **Hangya B**, Schwarcz A, Szabadits E, Szöllösi D, Szigeti K, Máthé D, West B, Sviatkó K, Bras A, Mariani JC, Kliewer A, Lenkei Z, Hricisák L, Benyó Z, Baranyi Z, Sperlág B, Menyhárt Á, Farkas E, Denes A (2022) Microglia modulate blood flow, neurovascular coupling and hypoperfusion via purinergic actions. *J Exp Med*, 219:e20211071.
35. Hegedüs P, Velencei A, Belval CH, Heckenast J, **Hangya B** (2021) Training protocol for probabilistic Pavlovian conditioning in mice using an open-source head-fixed setup. *STAR Protoc*, 2:100795.
34. Kaszas A, Szalay G, Slézia A, Bojdán A, Vanzetta I, **Hangya B**, Rózsa B, O'Connor R, Moreau D (2021) Two-photon GCaMP6f imaging of infrared neural stimulation evoked calcium signals in mouse cortical neurons in vivo. *Sci Rep*, 11:9775.
33. Hegedüs P, Heckenast J, **Hangya B** (2021) Differential recruitment of ventral pallidal e-types by behaviorally salient stimuli during Pavlovian conditioning. *iScience*, 24:102377.
32. Birtalan E, Bánhidi A, Sanders JI, Balázsfi D, **Hangya B** (2020) Efficient training of mice on the 5-choice serial reaction time task in an automated rodent training system. *Sci Rep*, 10:22362.
31. Király B, Balázsfi D, Horváth I, Solari N, Sviatkó K, Lengyel K, Birtalan E, Babos M, Bagaméry G, Máthé D, Szigeti K, **Hangya B** (2020) In Vivo Localization of Chronically Implanted Electrodes and Optic Fibers in Mice. *Nat Comm*, 11:4686.
30. Laszlovszky T, Schlingloff D, Hegedüs P, Freund TF, Gulyás A, Kepecs A, **Hangya B** (2020) Distinct synchronization, cortical coupling and behavioral function of two basal forebrain cholinergic neuron types. *Nat Neurosci*, 23:992-1003.
29. Széll A, Martínez-Bellver S, Hegedüs P, **Hangya B** (2020) OPETH: Open Source Solution for Real-time Peri-event Time Histogram Based on Open Ephys. *Front Neuroinform*, 14:21.
28. Király B, **Hangya B** (2020) Cartographers of the Cognitive Map: Locus Coeruleus Is Part of the Guild. *Neuron*, 105:951-953.
27. Hegedüs P, Martínez-Bellver S, **Hangya B** (2019) Guardians of the learning gate. *Nat Neurosci*, 22:1747-1748.
26. Solari N, **Hangya B** (2018) Cholinergic modulation of spatial learning, memory and navigation. *Eur J Neurosci*, 48:2199-2230.
25. Solari N*, Sviatkó K*, Laszlovszky T*, Hegedüs P*, **Hangya B** (2018) Open source tools for temporally controlled rodent behavior suitable for electrophysiology and optogenetic manipulations. *Frontiers in Systems Neuroscience*, 12:18.
24. Ma S, **Hangya B**, Leonard C, Wisden W, Gundlach AL (2018) Dual-transmitter systems regulating arousal, attention, learning and memory. *Neurosci Biobehav Rev*, 85:21-33.
23. Sviatkó K, **Hangya B** (2017) Monitoring the Right Collection: The Central Cholinergic Neurons as an Instructive Example. *Frontiers in Neural Circuits*, 11:31.
22. Sanders JI, **Hangya B**, Kepecs A (2016) Signatures of a statistical computation in the human sense of confidence. *Neuron*, 90:499-506.
21. **Hangya B**, Ranade SP, Lorenc M, Kepecs A (2015) Central cholinergic neurons are rapidly recruited by reinforcement feedback. *Cell*, 162:1155–1168.

20. **Hangya B**, Sanders JI, Kepecs A. (2015) A mathematical framework for statistical decision confidence. *Neural Computation*, 28:1840-1858.
19. **Hangya B**, Kepecs A (2015) Vision: How to Train Visual Cortex to Predict Reward Time. *Curr Biol* 25:R490-492.
18. Giber K, Diana MA, Plattner V, Dugué GP, Bokor H, Rousseau CV, Maglóczy M, Havas L, **Hangya B**, Wildner H, Zeilhofer HU, Dieudonné S, Acsády L (2015) A subcortical inhibitory signal for behavioral arrest in the thalamus. *Nat Neurosci* 18:562-568.
17. Rovó Z, Mátyás F, Barthó P, Slézia A, Lecci S, Pellegrini C, Astori S, Dávid C, **Hangya B**, Lüthi A, Acsády L (2014) Phasic, Nonsynaptic GABA-A Receptor-Mediated Inhibition Entrain Thalamocortical Oscillations. *J Neurosci* 34:7137-7147.
16. **Hangya B**, Pi HJ, Kvitsiani D, Ranade SP, Kepecs A (2014) From circuit motifs to computations: mapping the behavioral repertoire of cortical interneurons. *Curr Opin Neurobiol* 26C:117-124.
15. Groh A*, Bokor H*, Mease RA, Plattner VM, **Hangya B**, Stroh A, Deschenes M, Acsády L (2014) Convergence of cortical and sensory driver inputs on single thalamocortical cells. *Cerebral Cortex* 24:3167-3179.
14. Poucet B, Sargolini F, Song EY, **Hangya B**, Fox SE, Muller RU (2013) Independence of landmark and self-motion guided navigation: a different role for grid cells. *Philosophical Transactions of the Royal Society B* 369:20130370
13. Pi HJ, **Hangya B**, Kvitsiani D, Sanders JI, Huang ZJ, Kepecs A (2013) Cortical interneurons that specialize in disinhibitory control. *Nature* 503:521-524.
12. Kvitsiani D*, Ranade S*, **Hangya B**, Taniguchi H, Huang JZ, Kepecs A (2013) Distinct behavioural and network correlates of two interneuron types in prefrontal cortex. *Nature* 498:363-366.
11. Ranade S*, **Hangya B***, Kepecs A (2013) Multiple modes of phase locking between sniffing and whisking during active exploration. *J Neurosci* 33:8250-8256.
*, equal contribution
10. Lin H, **Hangya B**, Fox SE, Muller RU (2012) Repetitive convulsant-induced seizures reduce the number but not precision of hippocampal place cells. *J Neurosci* 32:4163-4178.
9. **Hangya B**, Tihanyi BT, Entz L, Fabó D, Eróss L, Wittner L, Jakus R, Varga V, Freund TF, Ulbert I (2011) Complex Propagation Patterns Characterize Human Cortical Activity during Slow-Wave Sleep. *J Neurosci* 31:8770-8779.
8. Czurkó A, Huxter J, Li Y, **Hangya B**, Muller RU (2011) Classification of interneurons in the hippocampal formation of freely moving rats. *J Neurosci* 31:2938-2947.
7. Slézia A*, **Hangya B***, Ulbert I, Acsády L (2011) Phase advancement and nucleus-specific timing of thalamocortical activity during slow cortical oscillation. *J Neurosci* 31:607-617.
*, equal contribution
6. **Hangya B**, Li Y, Muller RU, Czurkó A (2010) Complementary spatial firing in place cell-interneuron pairs. *J Physiol* 588:4165-4175.
5. Stefanics G*, **Hangya B***, Hernádi I, Winkler I, Lakatos P, Ulbert I (2010) Phase entrainment of human delta oscillations can mediate the effects of expectation on reaction speed. *J Neurosci* 30:13578-13585.
*, equal contribution

4. Varga V*, Losonczy A*, Zemelman BV, Borhegyi Z, Nyiri G, Domonkos A, **Hangya B**, Holderith N, Magee JC, Freund TF (2009) Fast Synaptic Subcortical Control of Hippocampal Circuits. *Science* 326:449-453.
3. **Hangya B**, Borhegyi Z, Szilágyi N, Freund TF, Varga V (2009) GABAergic neurons of the medial septum lead the hippocampal network during theta activity. *J Neurosci* 29:8094-8102
2. Varga V, **Hangya B**, Kránitz K, Ludányi A, Zemankovics R, Katona I, Shigemoto R, Freund TF, Borhegyi Z (2008) The presence of pacemaker HCN channels identifies theta rhythmic GABAergic neurons in the medial septum. *J Physiol* 586:3893-915.
1. Jelinek I, László V, Buzás E, Pállinger É, **Hangya B**, Horváth Z, Falus A (2007) Increased Antigen Presentation and Th1-polarization in Genetically Histamine-free Mice. *International Immunology* 19:51-58.