

## Curriculum Vitae

**Name:** István Katona

**Date of Birth:** 10/10/1973

**Nationality:** Hungarian

**Full postal address:** Momentum Laboratory of Molecular Neurobiology, Department of Molecular and Developmental Neurobiology, Institute of Experimental Medicine, Hungarian Academy of Sciences (IEM HAS), Szigony utca 43, Budapest, Hungary, H-1083

**Phone:**+36-1210-9982; **Fax:**+36-1210-9412; **E-mail:** katona@koki.hu; **homepage:** www.katonalab.hu

### Education:

1. PhD in Neuroscience: János Szentágothai Doctoral School of Neurosciences, Semmelweis Medical University, Budapest, Hungary (09/1997-09/2000).
2. MSc in Biology: Loránd Eötvös University, Budapest, Hungary (09/1992-06/1997).

### Professional experience:

1. Professor, Head of Department of Molecular and Developmental Neurobiology, Institute of Experimental Medicine, Hungarian Academy of Sciences (since 01/2011).
2. Visiting Professor, Department of Neurobiology and Anatomy, University of California, Irvine, USA (01/2011-06/2011; 01/2012-03/2012). Head: Prof. Ivan Soltész
3. Senior Research Fellow, Head of Laboratory of Molecular Neurobiology, IEM HAS (01/2007-12/2010).
4. Bolyai Research Fellow, Cerebral Cortex Research Group, Head: Prof. Tamás F. Freund, IEM HAS (01/2003-12/2006).
5. Visiting scientist, Laboratory for Neuronal Circuit Development, RIKEN BSI, Wako-shi, Japan (06/2004-09/2004). Head: Prof. Takao K. Hensch.
6. EMBO Postdoctoral Fellow, Department of Molecular Neurobiology, Max-Planck Institute for Medical Research, Heidelberg, Germany (09/2000-12/2002). Head: Prof. Peter Seeburg and Prof. Hannah Monyer.
7. PhD student, Laboratory of Functional Neuroanatomy, IEM HAS (09/1997-09/2000). Supervisor: Prof. Tamás F. Freund.
8. Student Research Assistant, Laboratory of Functional Neuroanatomy, IEM HAS (10/1993-08/1997). Supervisor: Prof. Tamás F. Freund.

**Awards:**

Hungarian Academy of Sciences' Academy Prize for outstanding scientific achievements in 2016

NIH COBRE Lectureship, National Center for Natural Products Research, Oxford, MS in 2016

Elected member of the Academia Europea in 2013

Momentum Award of the Hungarian Academy of Sciences in 2013

The Wellcome Trust International Senior Research Fellowship in 2010

European Research Council, Starting Independent Researcher Grant in 2009

IACM Award "for a considerable contribution to cannabinoid research" in 2009

Included in the top 1% of most cited Neuroscientists according to Web of Science since 2008

Central European Talent Award, Best Life Scientist in 2007

János Bolyai Fellow, 2003-2006, 2007-2010, Excellent Achievements Category

IBRO-SFN Travel Award, 2006

European Molecular Biology Organization, Long-term Fellowship, 2000-2002

Eötvös Hungarian State Fellowship, 2000

Richter-Gedeon Research Award, 1997

Pro Renovanda Culturae Hungariae Student Scholarship, 1996-1997

Scholarship of the Hungarian Republic, 1996

Student of the Year Award, Loránd Eötvös University, Budapest, Hungary, 1996

**National and International Service:**

Hungarian Scientific Research Fund, Neuroscience Study Section, Member 2012-2014, Head 2016-

Advisory Board, Research Institutes of Hungarian Academy of Sciences, Life Science Section, 2015-

Programme Committee of the 15<sup>th</sup> Biannual Conference of the Hungarian Neuroscience Society, 2014

Programme Committee of the 8<sup>th</sup> FENS Forum, Member, 2012, Barcelona, Spain

Young Investigator Advisory Board of the President of the Hungarian Academy, Member, 2008

**Professional Societies:**

Member, International Cannabinoid Research Society (2006-present)

Member, Society for Neuroscience (2006-present)

Member, Federation of European Neurosciences (1996-present)

Member, Hungarian Neuroscience Society (1996-present)

### **Selected important publications:**

1. Katona I, Sperlagh B, Sik A, Kofalvi A, Vizi ES, Mackie K and Freund TF (1999) Presynaptically located CB1 cannabinoid receptors regulate GABA release from axon terminals of specific hippocampal interneurons. *The Journal of Neuroscience*, 19: 4544-4558.
2. Katona I, Urban GM, Wallace M, Ledent C, Jung KM, Piomelli D, Mackie K and Freund TF (2006) Molecular composition of the endocannabinoid system at glutamatergic synapses. *The Journal of Neuroscience*, 24:5268-5237.
3. Katona I and Freund TF (2008) Endocannabinoid signaling as a synaptic circuit breaker in neurological disease. *Nature Medicine*, 14:923-930.
4. Ludanyi A, Eross L, Czirjak S, Vajda P, Halasz P, Watanabe M, Palkovits M, Magloczky Z, Freund TF and Katona I (2008) Downregulation of the CB1 cannabinoid receptor and related molecular elements of the endocannabinoid system in epileptic human hippocampus. *The Journal of Neuroscience*, 28:2976-2990.
5. Jung KM, Sepers M, Henstridge CM, Lassalle O, Neuhofer D, Martin H, Ginger M, Frick A, DiPatrizio NV, Mackie K, \*Katona I, \*Piomelli D and \*Manzoni OJ (2012) Uncoupling of the endocannabinoid signaling complex in a mouse model of fragile X syndrome. *Nature Communications*, 3:1080. (\*as equal corresponding author)
6. Katona I and Freund TF (2012) Multiple functions of endocannabinoid signaling in the brain. *Annual Review of Neuroscience*, 35:529-558.
7. Peterfi Z, Urban GM, Papp OI, Nemeth B, Monyer H, Szabo G, Erdelyi F, Mackie K, Freund TF, Hajos N and Katona I (2012) Endocannabinoid-mediated long-term depression of afferent excitatory synapses in hippocampal pyramidal cells and GABAergic interneurons. *The Journal of Neuroscience*, 32:14448-14463.
8. Lee SH, Ledri M, Toth B, Marchionni I, Henstridge CM, Dudok B, Kenesei K, Barna L, Szabo SI, Renkecz T, Oberoi M, Watanabe M, Limoli CL, Horvai G, Soltesz I and Katona I (2015) Multiple Forms of Endocannabinoid and Endovanilloid Signaling Regulate the Tonic Control of GABA Release. *The Journal of Neuroscience*, 35:10039-57.
9. Dudok B, Barna L, Ledri M, Szabo SI, Szabadits E, Pinter B, Woodhams SG, Henstridge CM, Balla GY, Nyilas R, Varga C, Lee SH, Matolcsi M, Cervenak J, Kacs Kovics I, Watanabe M, Sagheddu C, Melis M, Pistis M, Soltesz I and Katona I (2015) Cell-specific STORM superresolution imaging reveals nanoscale organization of cannabinoid signaling. *Nature Neuroscience*, 18:75-86.
10. Barna L, Dudok B, Miczan V, Horvath A, Laszlo ZI and Katona I (2016) Correlated confocal and super-resolution imaging by VividSTORM. *Nature Protocols*, 11:163-183.

### **Summary of publication activity:**

Peer-reviewed papers:	53
Citations (Google):	8307
Impact factors:	464
h-index:	36

### **Grant Reviewer:**

Agence Nationale de la Recherche, France; Biotechnology and Biological Sciences Research Council, UK; Deutsche Forschungsgemeinschaft, Germany; European Molecular Biology Organization; Hungarian Scientific Research Fund; Hungarian Academy of Sciences, Momentum Program; National Programme in Brain Sciences, Hungary; Medical Research Council, UK; National Science Foundation, USA; Research Council, K.U. Leuven, Belgium; The Wellcome Trust, UK; DBT India Alliance

### **Editorial Boards:**

European Journal of Neuroscience (2008-present)  
Frontiers in Integrative Neurosciences (2008-present)  
Frontiers in Neuroanatomy (2008-present)  
Frontiers in Synaptic Neuroscience (2012-present)  
Cannabis and Cannabinoid Research (2015-present)

### **Invited Reviewer:**

Nature Medicine, Nature Neuroscience, Nature Protocols, PNAS, The Journal of Neuroscience, The Journal of Experimental Medicine, Brain, Cerebral Cortex, The Journal of Physiology (London), European Journal of Neuroscience, European Neuropsychopharmacology, Journal of Comparative Neurology, British Journal of Pharmacology, Neuroimage, Neuropharmacology, Journal of Neurochemistry, Journal of Neurophysiology, Brain Structure and Function, Translational Psychiatry, Neurobiology of Aging, Scientific Reports, PLoS One, Molecular and Cellular Endocrinology, F1000Research, Frontiers in Integrative Neurosciences, Hippocampus, Neuroscience, Frontiers in Neuroanatomy, Methods and Applications in Fluorescence, Endocrine, CNS & Neurological Disorders, Multiple Sclerosis Journal, BBA-Molecular Cell Research, Pharmaceuticals, Neurochemistry International, Neuroscience Research, Journal of Chemical Neuroanatomy, Brain Research, Cellular Physiology and Biochemistry, Brain Research Bulletin, Cell and Tissue Research, Acta Biologica Hungarica

### **Invited Lectures and Organized Symposia:**

**2016:** Neuroscience Seminar, University of Arkansas for Medical Sciences, *Little Rock*, USA; NIH COBRE Distinguished Speaker at the National Center for Natural Products Research, University of Mississippi, *Oxford*, USA; Neuroscience Seminar, Allen Institute for Brain Science *Seattle*, USA; Neuroscience Seminar, University of Washington, School of Medicine, *Seattle*, USA;

**2015:** 4th International Frontiers in Neurophotonics Symposium, *Quebec*, Canada; Symposium on Advances in Medical Bioimaging, Charité Universitäts Medicine, *Berlin*, Germany; Symposium on Superresolution Microscopy in Biological Sciences, Multinational Congress on Microscopy (organizer), *Eger*, Hungary; 63rd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (plenary speaker), *Budapest*, Hungary; Super-resolution in different dimensions, International Meeting on Advanced Microscopy, *Moscow*, Russia; Cannabinoid Function in the CNS, Gordon Research Conference (discussion leader), *Il Ciocco*, Italy; Neuroscience Seminar, Eötvös Loránd University, *Budapest*, Hungary; Neuroscience Seminar, University of Medicine and Pharmacology, *Tirgu Mures*, Romania;

**2014:** Symposium on Superresolution Microscopy (organizer and speaker), International Brain Research Organization Workshop, *Debrecen*, Hungary; Nanoscopy Conference, *Amsterdam*, The Netherlands; Symposium on Monoclonal Antibody Therapies BIO International Congress, *San Diego*, USA; Neuroscience Seminar, Scripps Institute, *La Jolla*, USA; 8<sup>th</sup> International Meeting on Metabotropic Glutamate Receptors, *Taormina*, Italy; Neuroscience Seminar, Freie Universität, *Berlin*, Germany; Neuroscience Seminar, University of Maryland, *Baltimore*, USA; Endocannabinoids and Related Mediators, Society for Neuroscience, Annual Meeting symposium, *Washington*, USA; Symposium on “Super-resolution imaging approaches in Neuroscience” (organizer), National Programme in Brain Sciences workshop, *Budapest*, Hungary; Super-Resolution Nanoscopy: Vision Beyond the Limits, MIC symposium, *Bern*, Switzerland

**2013:** Benefri Neuroscience Workshop, Methods in Experimental and Clinical Neuroscience, *Berne*, Switzerland; Neuroscience Seminar, University of *Zürich*, Switzerland; Neuroscience Seminar, Semmelweis University, *Budapest*, Hungary; “From the Synapse to networks and disease”, Inaugural Neuroscience Conference, *Irkutsk*, Russia; 2013; Gordon Conference on Cannabinoid signaling in the nervous system, *Waterville*, NH, USA; “Inhibitory control of brain plasticity”, Neuroscience Conference, *Krakow*, Poland; 13<sup>th</sup> Austrian Neuroscience Association Meeting, *Vienna*, Austria; Neuroscience Seminar, College de France, *Paris*, France; Wellcome Trust Researcher Meeting, *Ashridge*, UK; Neuroscience Seminar, Nikon Bioscience Development Department, *Yokohama*, Japan;

Symposium on Translational Research, Hungarian Academy of Sciences, *Budapest*, Hungary; Neuroscience Seminar, Universitat Johannes Gutenberg, *Mainz*, Germany.

**2012:** Neuroscience Seminar, University of California, *Irvine*, USA; Neuronus 2012 IBRO Neuroscience Forum, *Krakow*, Poland; Symposium on “The cannabinoid system as a therapeutic target in neurological disorders” satellite meeting for the 8<sup>th</sup> FENS Forum, *Barcelona*, Spain; Cold Spring Harbor Laboratory and University Pompeu Fabra joint conference on “International course on the cellular biology of addiction”, *Barcelona*, Spain; Neuroscience Seminar, Charité Universitäts Medizin, *Berlin*, Germany.

**2011:** Neuroscience Seminar, Stanford University, *Palo Alto*, USA; SiNAPSA Neuroscience Conference, FENS Featured Regional Meeting, *Ljubljana*, Slovenia (as organizer); 7<sup>th</sup> International Meeting on Metabotropic Glutamate Receptors, *Taormina*, Italy

**2010:** 7<sup>th</sup> FENS Forum of European Neuroscience, *Amsterdam*, The Netherlands (as organizer); International Symposium on the Endocannabinoid System: From Physiology to Pathophysiology, *Bonn*, Germany

**2009:** Neuroscience Seminar, IZN-Goethe Universität, *Frankfurt*, Germany; Neuroscience Seminar, Richter-Gedeon Ltd, *Budapest*, Hungary; Neuroscience Seminar, Institute of Biochemistry, *Coimbra*, Portugal; 4<sup>th</sup> European Workshop on Cannabinoid Research, *Madrid*, Spain; Gordon Research Conference on Cannabinoid Function in the CNS, *Biddeford*, Maine; Symposium on Endocannabinoid Mechanisms in Brain Disease, Society for Neuroscience, Annual Meeting, *Chicago*, USA.

**2008:** Neuroscience Seminar, MRC Anatomical Neuropharmacology Unit, *Oxford*, UK; Neuroscience Seminar, Max Planck Institute for Brain Research, *Frankfurt*, Germany; International Cannabinoid Research Society, *Aviemore*; UK; Neuroscience Seminar, *Dundee*, UK; Neuroscience Seminar, Abbott GMBH, Center for Drug Discovery, *Ludwigshaven*, Germany; Neuroscience Seminar, Department of Pharmacology and Toxicology, University of *Zürich*, Switzerland; Symposium on “Cannabinoids and Pain”, European Winter Brain Conference, *Les Arcs*, France

**2007:** Symposium on “Cannabinoid Signaling in the Nervous System”, 17. Neuropharmacology conference, *San Diego*, USA; Symposium on “Endocannabinoid Functions in the Developing and Adult Nervous System”, Karolinska Institute, *Stockholm*, Sweden; Symposium on “Synapses, Cells and Networks in Cortical Microcircuits”, Hungarian Neuroscience Society, *Szeged*, Hungary; Genaddict EU Consortium Symposium, *Bonn*, Germany

**2006:** Symposium on Cannabinoid Research in Pain, University of *Heidelberg*, Germany; Genaddict EU Consortium Symposium, *Barcelona*, Spain; International Cannabinoid Research Society Annual

Meeting, *Tihany*, Hungary; Molecular Pharmacology Symposium, Hungarian Biochemical Society, *Balatonoszod*, Hungary

**2004:** Neuroscience Seminar, National Institute of Physiological Sciences, *Okazaki*, Japan; Neuroscience Seminar, RIKEN Brain Science Institute, *Wako-shi*, Japan

**2002:** Neuroscience Seminar, Pharmakologisches Institut, *Heidelberg*, Germany

**2000:** Neuroscience Seminar, Friedrich Miescher Institute, *Basel*, Switzerland

### **Funding ID (as PI):**

1. Agency: National Research, Development and Innovation Office, Title: The Abhd4 serine hydrolase, an enigmatic member of the endocannabinoid system: molecular, anatomical and functional characterization in the developing neocortex. Period: 2016-2020
2. Agency: National Programme in Brain Sciences, Title: Equipment grant to apply optogenetic approaches in patch-clamp recording. Period: 2015-2016.
3. Agency: National Research, Development and Innovation Office, Title: New research, diagnostic and therapeutic target identification and analysis by super-resolution imaging and immunolabeling-based approaches (Co-PI as consortium member). Period: 2015-2019
4. Agency: Hungarian Academy of Sciences, Momentum Programme, Title: Quantitative molecular characterization of synaptic endocannabinoid signaling. Period: 2013-2018.
5. Agency: Hungarian Academy of Sciences, Title: Equipment grant to study the nanoscale architecture of the brain. Period: 2012-2013.
6. Agency: The Wellcome Trust, Title: Molecular architecture and physiological role of novel N-acyl-ethanolamines in neurons. Period: 2010-2016.
7. Agency: Swiss Contribution, Title: Unraveling the role of novel molecular signaling pathways in the regulation of pain (Co-PI with Hanns Ulrich Zeilhofer, University of Zürich, Switzerland). Period: 2010-2015.
8. Agency: European Research Council, Starting Independent Researcher Grant, Title: Understanding the molecular blueprint and functional complexity of the endocannabinoid metabolome in the brain. Period: 2009-2014.
9. Agency: Hungarian Scientific Research Fund and the Norwegian Contribution Fund, Title: Molecular diversity and plasticity of endocannabinoid signaling at cortical synapses; Period: 2009-2011.
10. Agency: Royal Society International Joint Projects (Co-PI with Andy Irving, University of Dundee, UK), Title: GPR55: a novel cannabinoid receptors expressed in the central nervous

system. Period: 2007-2009.

11. Agency: Hungarian Medical Research Council, Title: Molecular architecture of the endocannabinoid system in brain areas involved in reward signaling, Period: 2006-2009.
12. Agency: Hungarian Scientific Research Fund, Title: Role of novel lipid-sensitive receptors in the regulation of cortical network activity, Period: 2005-2008.

### **Trainees:**

#### Postdoctoral Research Fellow:

Ana Bernal Chico, supported by Postdoctoral Fellowship Programme of the Hungarian Academy of Sciences (2015-present)

Zsolt Balogi (2015-present)

Stephen Woodhams (2012-present)

Marco Ledri (2013-2015; continued as independent group leader at Lund University, Sweden)

Chris Henstridge, supported by Long-Term EMBO Fellowship, (2010-2014; continued as postdoc at University of Edinburgh, UK)

Ashley Dorning (2013-2014, continued as staff scientist at MRC Centre for Reproductive Health, Edinburgh, UK)

Szilárd Szabó (2011-2013; continued as postdoc at University of Freiburg, Germany)

Eszter Horváth (2010- currently on maternity leave)

#### PhD students:

Benjamin Barti (2015-present)

Vivien Miczán (2015-present)

Zsófia László (2013- in joint supervision with Zsolt Lele).

Gyula Balla (2010-present)

Barna Dudok (2009-present)

Anikó Ludányi (2007- defended her thesis in 2011, *summa cum laude*; continued as postdoc at University College London, UK)

Rita Nyilas (2006- defended her thesis in 2010, *summa cum laude*; continued as postdoc at Columbia University, New York, USA)

#### Junior Research Fellow:

Máté Kisfali (2016-present)



Kata Kenesei (2014-present)

László Barna (2010-2014; continued as the Head of the Nikon Center of Excellence for Neuronal Imaging Microscopy Core Facility at IEM HAS, Budapest)

Eszter Szabadits (2011- 2014)

Gabriella M. Urbán (2004-2009)

#### Undergraduate:

Judit Glavinics (2015-present)

Fruzsina Mógor (2015-present)

Miklós Zöldi (2015-present)

Emese Kovács (2013-2015)

Benjámín Barti (2013-2015; Special Award at the National Student Research Conference, 2015)

Norbert Fehér (2013-2014; continued as student at University of Cambridge)

Vivien Miczán (2013-2015; Pro Scientia Gold Medal and First Prize at the National Student Research Conference, 2015)

Emese Baráth (2012-2013)

Eszter Székely (2011-2012)

Zsófia László (2009-2013, Second Prize at the National Student Research Conference, 2013)

Eszter Balázs (2009-2012)

Benjámín Márkus (2008-2009)

Barna Dudok (2004-2009; Second Prize at the National Student Research Conference, 2009)

Anikó Ludányi (2003-2007; Junior Prima Award, 2008; First Prize at the National Student Research Conference, 2007)

Norbert Szabó (2003-2005)

#### Visiting scientists:

Amy Pohodich (2 months in 2008; University of Texas, Austin, USA)

Chris Henstridge (3 weeks in 2008; University of Dundee, UK)

Michelle Stewart (2 months in 2009; Carnegie Mellon University, Pittsburgh, USA)

Pascal Gratz (1 month in 2010; University of Zürich; Switzerland)

Ashley Dorning (1 year in 2012; University of Dundee, UK)

Ana Bernal Chico (3 months in 2013; University of Bilbao, Spain)

Daniel Ganszky (2 months; University of Dundee, UK)

Carolin von Shoultz (1 month in 2014; University of Zürich; Switzerland)

István Mihály (3 months in 2014; University of Medicine and Pharmacology, Tirgu Mures; Romania)

Vanessa Anna Stempel (1 month in 2015; Charite University, Berlin, Germany)

Esther Baliko (5 months in 2015; Medical University of Vienna, Austria)

Antonio di Fusco (3 months in 2015; Istituto Neurologico Mediterraneo Neuromed, Pozzilli, Italy)

Krisztina Kelemen (2 months in 2015, University of Medicine and Pharmacology, Tirgu Mures; Romania;

**Teaching experience:**

1. Regular lecturer at undergraduate and PhD courses in Molecular Neurobiology, János Szentágothai Doctoral School in Neurosciences, Semmelweis Medical University.
2. Lectures in Psychology, Neurobiology of Addiction, Lorand Eotvos University.