

Name KULIK, Akos Born: May 16 th , 1965	Position Title Group Leader Institute of Physiology University of Freiburg, Germany
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EDUCATION/TRAINING

Institution and Location	Degree	Year(s)	Field of Study
University of Freiburg, Germany	Habilitation (PD)	2012	Anatomy
University of Debrecen, Medical School, Hungary	PhD	1993-1997	Physiology-Neurobiology
University of Debrecen, Faculty of Science, Hungary	MSc	1988-1993	Biology-Biotechnology

A. Positions and Honours

Employment/Experience

2012-present	Group Leader at the Institute of Physiology, University of Freiburg, Germany
2008-present	Project Leader at the Institute of Anatomy and Cell Biology, University of Freiburg, Germany
2002-2007	Research Associate at the Institute of Anatomy and Cell Biology, University of Freiburg, Germany
2000-2002	Alexander von Humboldt Fellow at the Institute of Anatomy and Cell Biology, University of Freiburg, Germany
1999-2000	Visiting Scientist at NIPS, Okazaki, Japan
1996-1999	JSPS Postdoctoral Fellow at the Department of Morphological Brain Science, Kyoto University, Japan
1993-1999	Research Associate at the Department of Anatomy, University of Debrecen, Hungary

Honors, Awards and Scholarships

2004	Young Investigators' Award (Japan)
1995	Scholarship of the Hungarian National Science Foundation (Hungary): visiting student at the MRC Anatomical Neuropharmacology Unit, Oxford University, UK
1994	Abraham Ambrus Prize (Hungary)
1994	Mezey Roza Award (Hungary)
1993	Faculty of Science Award (Hungary)

Other Scientific Activities

Reviewer for international journals including J Neuroscience, Hippocampus, J Comparative Neurology, European J Neuroscience.
2012-present Editor for ISRN Neuroscience

B. 10 Selected Publications

Joint CP-AMPA and group I mGlu receptor activation is required for synaptic plasticity in dentate gyrus fast-spiking interneurons.

Hainmüller T, Kriegelstein K, Kulik A, Bartos M (2014).
Proceedings of the National Academy of Sciences 111, 13211-13216.

Differential GABA_B receptor-mediated effects in perisomatic- and dendrite-targeting parvalbumin interneurons.

Booker SA, Gross A, Althof D, Shigemoto R, Bettler B, Frotscher M, Hearing M, Wickman K, Watanabe M, Kulik A*, Vida I* (2013). (*Corresponding authors).
The Journal of Neuroscience 33, 7961-7974.

Quantitative regional and ultrastructural localization of the Ca_v2.3 subunit of R-type calcium channels in mouse brain.

Parajuli LK, Nakajima C, Kulik A*, Matsui K, Schneider T, Shigemoto R, Fukazawa Y* (2012).
The Journal of Neuroscience 32, 13555-13567(*Corresponding authors).

The GABA_{B1a} isoform mediates heterosynaptic depression at hippocampal mossy fiber synapses.

Guetg N, Seddik R, Vigot R, Turecek R, Gassmann M, Vogt KE, Bräuner-Osborne H, Shigemoto R, Kretz O, Frotscher M, Kulik A*, Bettler B* (2009).
Journal of Neuroscience 29, 1414-1423. (*Corresponding authors).

Nanodomain coupling between Ca²⁺ channels and Ca²⁺ sensors promotes fast and efficient transmitter release at a cortical GABAergic synapse.

Bucurenciu I, Kulik A, Schwaller B, Frotscher M, Jonas P (2008).
Neuron 57, 536-545.

Compartment-dependent co-localization of Kir3.2-containing K⁺ channels and GABA_B receptors in hippocampal pyramidal cells.

Kulik A, Vida I, Fukazawa Y, Guetg N, Kasugai Y, Marker C, Rigato F, Bettler B, Wickman K, Frotscher M, Shigemoto R (2006).
Journal of Neuroscience 26, 4289-4297.

Immunocytochemical localization of the α_{1A} subunit of the P/Q-type calcium channel in the rat cerebellum.

Kulik A, Nakadate K, Hagiwara A, Fukazawa Y, Lujan R, Saito H, Suzuki N, Futatsugi A, Mikoshiba K, Frotscher M, Shigemoto R (2004).
European Journal of Neuroscience 19, 2169-2178.

Subcellular localization of metabotropic GABA_B receptor subunits GABA_{B1a/b} and GABA_{B2} in the rat hippocampus.

Kulik A, Vida I, Lujan R, Haas CA, Lopez-Bendito G, Shigemoto R, Frotscher M (2003).
Journal of Neuroscience 23, 11026-11035.

Distinct localization of GABA_B receptors relative to synapses in the rat cerebellum and ventrobasal thalamus.

Kulik A, Nakadate K, Nyiri G, Notomi T, Malitschek B, Bettler B, Shigemoto R (2002).
European Journal of Neuroscience 15, 328-341.

Target-cell-specific concentration of a metabotropic glutamate receptor in the presynaptic active zone of hippocampal neurons.

Shigemoto R, Kulik A, Roberts JDB, Ohishi H, Nusser Z, Kaneko T, Somogyi P (1996).
Nature 381, 523-525.

Research Interests

Functionally diverse metabotropic GABA_B and glutamate receptors (mGluRs) control neuronal excitability and synaptic transmission by activating or inhibiting various types of ion channels, such as high voltage-activated Ca²⁺, as well as K⁺ channels. The impact of receptor activation on synaptic integration and regulation of transmitter release depends on the spatial relationship and coupling of receptors and their effectors in subcellular compartments of the target neurons. We have been, therefore, investigating the structural and functional basis of metabotropic receptor-effector ion channel complex-mediated signaling in cortical principal cells and GABAergic interneurons, as well as studying the activity-dependent regulation of the surface dynamics of protein complexes.