

CURRICULUM VITAE

Oleg Senkov, PhD

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H-index Total Citations	4 102
PERSONAL INFO	
Data of Birth: Place of Birth: Citizenship: Family Status: Native Language: Foreign Languages:	31 March, 1972 Dnepropetrovsk, Ukraine Russian Married Russian English (fluent) German (B2)
WORKING ADDRESS	
Group of Prof. Dr. Hannah Monyer, Abt. Klinische Neurobiologie (A230) des Universitätsklinikums und des DKFZ Im Neuenheimer Feld 280 69120 Heidelberg, Germany	
Tel: Fax: www: email:	+49-6221-42-3101 +49-6221-42-3111 www.olegsenkov.com senkov@uni-heidelberg.de
DEGREES	
6.2006	Doktor der Naturwissenschaften, Dr. rer. nat. (PhD) Fakultät für Mathematik, Informatik und Naturwissenschaften der Universität Hamburg, Deutschland <i>PhD thesis: "Functional role of the polysialylated neuronal cell adhesion molecule in fear conditioning of mice (Mus musculus, L., 1578)" Ergebnis: Sehr Gut (1.3)</i>
11.2000	Master of Science, M.Sc. (Tier und Humanphysiologie) Faculty of Biology and Soil Science, Department of General Physiology, St.Petersburg State University, St.Petersburg, Russia <i>Master Thesis: "The change of the heartbeat rate of Giant African snail Achatina fulica F., after the deleting of identified cardioregulating neurons". Mark: Excellent, 5 (5 max)</i>



6.1998 **Bachelor of Science, B.Sc.** (Biologie)
Faculty of Biology and Soil Science, Department of
General Physiology, St.Petersburg State University,
St.Petersburg, Russia

EDUCATION

10.2004-6.2006 PhD student (Doktorand) in Cognitive Neuroscience,
Neuroplasticity Group (Leader – Dr. Alexander
Dityatev), Institute for Neurophysiology and
Pathophysiology (Head – Prof. Dr. Andreas K. Engel),
University Medical Center Hamburg-Eppendorf,
Hamburg, Germany

4.2001-10.2004 PhD student (Doktorand) in Molecular and Behavioral
Neuroscience, Recognition Molecules and Synaptic
Plasticity Group (Leader – Dr. Alexander Dityatev),
Institute for Biosynthesis Neural Structures (Head –
Prof. Dr. Melitta Schachner), Center for Molecular
Neurobiology Hamburg (ZMNH), Hamburg, Germany

11.2000 Master student in Cellular Neurobiology, Simple
Neuronal Networks Group (Leader – Dr.
Vladimir L. Zhuravlev), Faculty of Biology and Soil
Science, Department of General Physiology,
St.Petersburg State University, St.Petersburg, Russia

6.1998 Bachelor student at the Faculty of Biology and Soil
Science, Department of General Physiology,
St.Petersburg State University, St.Petersburg, Russia

1989 Primary and High School

EMPLOYED

1.2010-present Wissenschaftler (Postdoc) in the Prof. Dr. Hannah
Monyer's Lab, In-vivo Electrophysiology Group,
Abt. Klinische Neurobiologie (A230)
des Universitätsklinikums und des DKFZ
Im Neuenheimer Feld 280, Heidelberg University,
Heidelberg, Germany

8.2006-12.2009 Wissenschaftler (Postdoc) in Visual Neurophysiology
Group (Leader - Dr. Gerhard Engler), Institute for
Neurophysiology and Pathophysiology (Head – Prof. Dr.
Andreas K. Engel), University Medical Center Hamburg-
Eppendorf, Hamburg, Germany

10.2004-7.2006 Wissenschaftler (Doktorand) in Neuroplasticity Group
(Leader – Dr. Alexander Dityatev), (Head - Dr. Engler),
Institute for Neurophysiology and Pathophysiology
(Head – Prof. Dr. Andreas K. Engel), University Medical
Center Hamburg-Eppendorf, Hamburg, Germany

4.2001-10.2004 Wissenschaftler (Doktorand) in Molecular and
Behavioral Neuroscience, Recognition Molecules and
Synaptic Plasticity Group (Leader – Dr. Alexander
Dityatev), Institute for Biosynthesis Neural Structures
(Head – Prof. Dr. Melitta Schachner), Center for
Molecular Neurobiology Hamburg (ZMNH), Hamburg,
Germany

1998-2000 Research assistant, Laboratory of Cellular Physiology and Biophysics (Head – Dr. O.V. Samoilov), Pavlov Institute of Physiology, RAS, St.Petersburg, Russia

1994-1995 Research assistant, Laboratory of Neuroimmunology (Head – Dr. I. Stolarov), Institute of the Human Brain (Head – Prof. Dr. N.P. Bechtereva), St.Petersburg, Russia

RESEARCH TECHNIQUES

- Acute and chronic recordings and analysis of EEG, EMG, ECG, AEPs, LFPs, MUA/SUA, LTP/LTD, place cells, grid cells;
- Optogenetic techniques and viral transfection in vivo;
- Implantation and chronic recordings of neuronal activity in freely moving mice during different cognitive tasks;
- Cannulation of mice targeting different brain areas;
- Design, running and analysis of behavior experiments (fear conditioning, place field test, pattern completion, novelty test, object recognition test, working memory tests, spatial memory tests, T-maze, Y-maze... etc);
- Construction of self-made electrodes, movable tetrodes and head-stages for chronic or acute recordings;
- Construction of experimental setups to combine electrophysiology in vivo and behavior tests;
- Intracellular recording in semi-intact snail brain;
- Programming in HTML, Signal, Spike, Neuroexplorer, Matlab, Noldus, Linux, Shell;
- Running Alpha-Omega, CED and Neuralynx high density electrophysiological recording systems.

TEACHING

An instructor of one year practical course in general physiology, Department of General Physiology, St.Petersburg State University, St.Petersburg, Russia

ATTENDED COURSES

3rd European Neuro- IT and Neuroengineering School “Neuroengineering of Cognitive Functions”, July 2005, Venice, Italy

One year Business School at the Faculty of Economics, St.Petersburg State University, Major: “Banking, Finance and Stocks”, September 1998 – May 1999, St.Petersburg, Russia

HOBBIES

Animals & Wildlife Photography, Web-Design, Illustration & Drawing, Popular-Science & Travel Writing, Skiing, Biking, Aikido

LINKS

www.uke.uni-hamburg.de/institute/neurophysiologie
www.uke.uni-hamburg.de
www.uni-hamburg.de
www.izn.uni-heidelberg.de

Publication List

SCIENTIFIC ARTICLES

2012

Li Zh., **Senkov O.**, Kelsch W. Involvement of NR2B subunit of NMDA receptors expressed on interneurons in development of functionally mature neuronal circuits in the brain. *In preparation*.

Senkov O., Allen K., Monyer H. Contribution of interneuron-specific GluR4-containing of AMPA receptors expressed in medial entorhinal cortex in spatial and working memory. *In preparation*.

Fuchs E.C., Kaneko H., Engelhardt J., **Senkov O.**, Vogt A., Monyer H. Interneuron-specific deletion of the TrkB receptor gene results in impaired maturation of the inhibitory system in the hippocampus. *In preparation*.

Senkov O., Engler G., Dityatev A., Schachner M., Engel A.K. Multisite EEG recording in NCAM knockout mice during associative learning of different modalities as CS. *In preparation*.

Senkov O., Tikhobrazova O, Dityatev A. (2012) PSA-NCAM: synaptic functions mediated by its interactions with proteoglycans and glutamate receptors, *Int J Biochem Cell Biology* *In press*.

Kochlamazashvili G., **Senkov O.**, and Dityatev A. (2012) Synaptic plasticity and oscillations. In: *Neuronal Network Analysis, a part of the "Neuromethods Series"*, Edited by Fellin T., Halassa M.M., Springer *In press*.

Kochlamazashvili G*, Bukalo O*, **Senkov O***, Salmen B., Gerardy-Schahn R., Engel A.K., Schachner M., and Dityatev A. (2012) Restoration of synaptic plasticity and learning in NCAM deficient mice via elevation of transmission mediated by the GluN2A-containing NMDA receptors. *J Neurosci* *In press*. * - Equally contributed

2010

Kochlamazashvili G., Henneberger C., Bukalo O., Dvoretzkova E., **Senkov O.**, Lievens P.M., Westenbroek R., Engel A.K., Catterall W.A., Rusakov D.A., Schachner M., Dityatev A. (2010) The extracellular matrix molecule hyaluronic acid regulates hippocampal synaptic plasticity by modulating postsynaptic L-type voltage-dependent Ca²⁺ channels. *NEURON*, July 15, 67(1): 116-128, with a coverpage

Kochlamazashvili G.*, **Senkov O.***, Grebenyuk S., Robinson C., Xiao M.F., Stummeyer K., Gerardy-Schahn R., Engel A.K., Feig L., Semyanov A., Suppiramaniam V., Schachner M., Dityatev A. (2010) Neural cell adhesion molecule-associated polysialic acid regulates synaptic plasticity and learning by restraining the signaling through GluN2B-containing NMDA receptors. *J Neurosci*, 30(11): 4171-83 * - Equally contributed

2006

Senkov O., Sun M., Weinhold B., Gerardy-Schahn R., Schachner M. and Dityatev A. (2006) Polysialylated NCAM is involved in induction of long-term potentiation and memory acquisition and consolidation in a fear conditioning paradigm. *J Neurosci*. 26:10888-10898

Stoenica L., **Senkov O.**, Gerardy-Schahn R., Weinhold B., Schachner M., Dityatev A. (2006) In vivo synaptic plasticity in the dentate gyrus of mice deficient in the neural cell adhesion molecule NCAM or its polysialic acid. *Eur J Neuroscience* 23: 2255–2264

1999

Zhuravlev V., Bugaj V., Safonova T., **Senkov O.**, Kodirov S. (1999) The chronoinotropic effects of new regulatory input to the heart of land pulmonates. *Acta Biol Hung*. 50 (1-3): 309-18

ABSTRACTS

Senkov O., Engler G., Schachner M., Dityatev A., Engel A.K. (2010) Ups and downs of theta-rhythm and learning: genetic and pharmacological approaches. The 7th Forum of European Neuroscience (FENS), Amsterdam, The Netherlands

Senkov O., Schachner M., Engel A.K., Dityatev A. (2008) Restoration of fear memory in NCAM deficient mice by resetting a balance in signaling via NR2A- and NR2B-containing NMDA receptors. The 6th Forum of European Neuroscience (FENS), Geneva, Switzerland

Stan T.L., **Senkov O.**, Engler G., Morellini F., Dityatev A., Schachner M., Engel A.K. (2008) Intrahippocampal recordings of rhythmic neuronal activity in freely moving conditionally L1 deficient mice. The 6th Forum of European Neuroscience (FENS), Geneva, Switzerland

Senkov O., Dityatev A., Makhina T., Dityateva G., Chambon P., Metzger D., Schachner M., Engel A.K. (2007) Inducible ablation of NCAM impairs preformed hippocampus- and cortex-dependent fear memories. The 37th Annual Meeting of Society of Neuroscience (SfN) at San Diego, CA, USA

Senkov O., Makhina T., Engel A.K., Dityatev A., Chambon P., Metzger D., Schachner M. (2007) Inducible ablation of NCAM gene in the adult mouse brain causes deficits in formation and retrieval of contextual memory in a repetitive auditory fear conditioning paradigm. The 31st Göttingen Neuroscience Conference, Göttingen, Germany

Kochlamazashvili G., **Senkov O.**, Bukalo O., Salmen B., Xiao M., Gerardy-Schahn R., Feig L., Schachner M., Dityatev A. (2007) NCAM-associated polysialic acid promotes synaptic plasticity via inhibition of the NR2B-containing NMDA receptor - Ras-GRF1 - p38 signaling pathway. The 9th International Neuroscience Winter Conference, Sölden, Austria

Senkov O., Sun M., Dityatev A., Schachner M. (2006) The role of polysialylated NCAM in hippocampal longterm potentiation and acquisition and late consolidation of contextual memory, The 5th Forum of European Neuroscience (FENS), Vienna, Austria

Zhuravlev V., Bugaj V., Safonova T., **Senkov O.**, Kochetova V. (2000) Behavioral and cardiac reactions after removing of single identified neurons in central ganglia of giant african snail, Achatina fulica Ferrussac, VI East European Conference of the International Society for Invertebrate Neurobiology (ISIN), Simpler Nervous Systems, Russia.

Grinkevich L., Lisachev P., **Senkov O.** (2000) Transcription factors CRE, C/EBP, AP-1, SRE and Helix memory formation. VI East European Conference of the international society for invertebrate neurobiology (ISIN), Simpler Nervous Systems, Russia

SELECTED POPULAR-SCIENCE ARTICLES

Senkov O. (2010) **"Schizophrenia: a black matter of the brain"**, a big review about one of the most mysterious mental disease - schizophrenia; molecular and genetic mechanisms of its different symptoms. "Scientific American" magazine, Rus Ed: "В Мире Науки", №5, 47-55

Ribina D., **Senkov O.** (2010) **"Remember everything. How to extend our brain capabilities?"**, a big practical review about modern approaches and techniques for enhancing cognitive functions, memory and learning. "Health" magazine, Rus Ed: "Здоровье", №4, 48-52

Senkov O. (2009) **"Do We Need Drugs for Our Mind?"**, a big review about so-called "smart drugs" and other ways to enhance our cognition. "Scientific American" magazine, Rus Ed: "В Мире Науки", №12, 36-43

Senkov O. (2009) **"Erase a fearful memory: PTSD"**, a review about post-traumatic stress disorder (PTSD) and interview with Gregory Quirk and Joseph LeDoux. "GEO" magazine, Rus Ed: №9

Senkov O. (2008) **"Genes We Change"**, a big review about a role of epigenetic & life-style factors in altering of gene expression which causes various diseases. "Scientific American" magazine, Rus Ed: "В Мире Науки", №11, 50-59

Senkov O. (2008) **"Brain is Hyper-Complex Space-Time Translator - or Parisian Interview with Dr. Buzsaki"**, one of the leaders in the field of brain oscillations and their role in learning and memory. "Scientific American" magazine, Rus Ed. "В Мире Науки", №10, 80-83

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