

CURRICULUM VITAE / Sitdikova Guzel

SURNAME: SITDIKOVA

FIRST NAMES: Guzel Faritovna

DATE AND PLACE OF BIRTH: December 28, 1968, Kazan, Russia

SEX: Female

ADDRESS:

Dept. of Human and Animal Physiology, Kazan Federal University, Kremlevskaya str. 18,
Kazan, Russia 4200008; E-mail:Guzel.Sitdikova@kpfu.ru; Tel. (007) 843-2337844

INSTITUTIONAL AFFILIATION

Kazan Federal University, Dept. of Human and Animal Physiology, Kazan, Russia

EDUCATION HISTORY

1978-1982 BS Kazan School №18, Russia

1986 – 1991 Undergraduate of Kazan State University, Biological faculty

1991-1993 Post graduate student of Kazan State University, Dept. of Human and Animal Physiology

1995 - Ph.D.thesis “The effects of fenolic substances on ionic currents of motor nerve endings” Dept. of Human and Animal Physiology, Kazan State University

1993-2001 – Professor Assistant of Dept. of Human and Animal Physiology

Since 2001 - Associate Professor of Dept. of Human and Animal Physiology

Since 2009 – Professor of Dept. of Human and Animal Physiology

Since 2012 – Head of Dept. of Human and Animal Physiology

LANGUAGE SKILLS

Russian native; English

FIELD OF STUDIES

Neuroscience, Gasotransmitters, physiology of excitable cells

CURRENT RESEARCH INTERESTING

Synaptic transmission, presynaptic mechanisms of modulation of transmitter release, vesicular cycle, ion channels, Ca-activated potassium channels, gasotransmitters, anesthetics and ethanol action on brain activity, regulation of contractility of smooth muscles and myocardium

RESEARCH SKILLS

Electrophysiology recording (intracellular or extracellular recording techniques), patch-clamp technique, cell culture, recordings of brain activity in vivo

GRANTS AND FELLOWSHIPS

1992-1993 - Soros postgraduate student

2000-2002 – Special scholarship of President of Russian Federation for young scientists

2002 - Special fellowship for young lecturer of Potanin's fund

GRANTS

2001 - №01-04-06292 Grant of Russian Foundation of Basic Researchers for young scientists

2003-2005 - №03-04-96252 “Second messenger system as a target of action of biological active compounds”

2006-2008 - N 06-04-49125 “The role of carbon monoxide in the modulation of synaptic transmission”

2009-2011 - 09-04-00748-a Hydrogen sulfide as novel endogenous modulators of synaptic transmission

2012- 2014 12-04-00960- Hydrogen sulfide as a gasotransmitter in excitable tissues

06.11.2007, 2008, 2010 - Bundesministerium für Wissenschaft und Forschung (BMWF), Austria – invited lecture,

2007 - 2014 Hirnforschungseminare des Projektteams “Hirnforschung in Österreich”

"Stifungs- und Förderungsgesellschaft" - research grants from University of Salzburg

SUPERVISION OF PHD STUDENTS:

Yakovlev A.V. (Associate professor, Dept of Human and Animal Physiology, Kazan Federal University);

Yakovleva O.V. (Senior teacher, Dept of Human and Animal Physiology, Kazan Federal University);

E.V. Gerasimova (Associate professor, Human and Animal Physiology, Kazan Federal University),

Khaertdinov N.N (Professor assistant, Human and Animal Physiology, Kazan Federal University),

present J.Lebedeva, Mustafina A., Koroleva K., Sabirullina G., Lifanova A

ORGANISATION OF INTERNATIONAL CONFERENCES

1. 13th annual Symposium for Biology students of Europe "SymBioSe 2009" "Biology:expansion of borders". – Kazan, 2009
2. International Meeting "Developmental Physiology", Jalchik Meeting Kazan 2012
3. UK-Russia Frontiers of Science Symposium - joint Symposium of the RF Academy of Science and the Royal Society of UK, Kazan, 2013
4. International school-conference "From neuron to brain", Kazan, 2013
5. International Symposium "Gasotransmitters:physiology and pathophysiology", Kazan 2014

MAIN PUBLICATIONS

1. Khalilov I.A., Sitdikova G.F., Zefirov A.L. Influence of catechol on neuromuscular transmission // *Neirofiziologiya/Neurophysiology (Kiev)* - 1993.- v.1, №6.- P.405-408 (in Russian)
2. [Sitdikova GF, Khalilov IA, Zefirov AL](#). The effect of phenol on the ion currents of the frog motor nerve ending *Fiziol Zh Im I M Sechenova*. 1996 Jul;82(7):78-84. (in Russian)
3. Zefirov A.L., Moukhamediarov M.A., Sitdikova G.F. Changes in the asynchronicity of transmitter release at the neuromuscular junction during prolonged high frequency stimulation// *Neirofiziologiya/Neurophysiology (Kiev)* 2002., V.34, N2/3 P 273-275
4. Yakovlev A.V., Sitdikova G.F., Zefirov A.L. Role the cGMP- and cAMP-dependent systems in effects of nitric oxide on transmitter release and potassium currents in the frog neuromuscular junction. *Neirofiziologiya/Neurophysiology (Kiev)* 2002 T.34, N.2/3, pp.267-269.
5. Yakovlev AV, Sitdikova GF, Zefirov AL Role of cyclic nucleotides in mediating the nitric oxide (II) effects on transmitter release and the electrogenesis of motor nerve endings. *Dokl Biol Sci*. 2002 Jan-Feb;382:11-4
6. [Zefirov AL, Sitdikova GF](#). [Ion channels in nerve ending] *Usp Fiziol Nauk*. 2002 Oct-Dec;33(4):3-33. Review (in Russian)
7. [Sitdikova GF, Yakovlev AV, Zefirov AL, Arkhipova OV](#). The effects of L- and D-stereoisomers on the transmitter secretion and ionic currents in the motor nerve ending. *Dokl Biol Sci*. 2003 Nov-Dec;393:523-6
8. Zefirov AL, Grigor'ev PN, Petrov AM, Minlebaev MG, Sitdikova GF [Analysis of living motor nerve ending of a frog by endocytotic fluorescent marker FM 1-43] *Tsitologiya*. 2003; 45(12):1163-71. (in Russian)
9. [Sitdikova GF, Grishin SN, Zefirov AL](#). 2005 Presynaptic effects of carbon monoxide in the myoneural synapse of the frog. *Dokl Biol Sci*. Jul-Aug;403:233-6.
10. Yakovlev A., Sitdikova G., Zefirov A 2005 [Intracellular presynaptic mechanisms of nitric oxide action in frog neuromuscular junction]//*Neirochimia*, т.22, №1, с.81-87. (in Russian)
11. G.F.Sitdikova, A.L.Zefirov 2006 [Gaseous messengers in nervous system] *Fiziol Zh Im I M Sechenova*. V.97, №7, p.872-882 Russian
12. Arkhipova OV, Grishin SN, Sitdikova GF, Zefirov AL The presynaptic effects of arachidonic acid and prostaglandin E2 at the frog neuromuscular junction. *Neurosci Behav Physiol*. 2006 Mar;36(3):307-12.
13. O.V. Yakovleva, G.F. Sitdikova, E.V. Gerasimova, A.L. Zefirov Fatty Acids Modulate Transmitter Release and Functioning of Potassium Channels in Motor Nerve Endings//*Neurochemical Journal*, 2007, Vol. 1, No. 2, pp. 143-149. (Original Russian Text, published in *Neirokhimiya*, 2006, Vol. 23, No. 4, pp. 294-300)
14. Sitdikova GF, Islamov RR, Mukhamedyarov MA, Permyakova VV, Zefirov AL, Palotas A. Modulation of neurotransmitter release by carbon monoxide at the frog neuromuscular junction. *Curr Drug Metab*. 2007 Feb;8(2):177-84.

15. E. V. Gerasimova, G. F. Sitdikova, A. L. Zefirov 2008 Hydrogen Sulfide as an Endogenous Modulator of Mediator Release in the Frog Neuromuscular Synapse//*Neurochemical Journal*, Vol. 2, 1–2, pp. 120–126.
16. Zefirov AL, Zakharov AV, Mukhametzyanov RD, Petrov AM, Sitdikova GF. [Vesicle cycle in mouse diaphragm motor nerve terminals]. *Russ Fiziol Zh Im I M Sechenova*. 2008 Feb;94(2):129-41. Russian
17. Petrov AM, Giniatullin AR, Sitdikova GF, Zefirov AL The role of cGMP-dependent signaling pathway in synaptic vesicle cycle at the frog motor nerve terminals. *J Neurosci*. 2008 Dec 3;28(49):13216-22. doi: 10.1523/JNEUROSCI.2947-08.2008
18. Zefirov AL, Zakharov AV, Mukhametzyanov RD, Petrov AM, Sitdikova GF The vesicle cycle in motor nerve endings of the mouse diaphragm. *Neurosci Behav Physiol*. 2009 Mar;39(3):245-52
19. Sitdikova GF, Weiger TM, Hermann A. Hydrogen sulfide increases calcium-activated potassium (BK) channel activity of rat pituitary tumor cells. *Pflugers Arch*. 2010 Feb;459(3):389-97.
20. Abramochkin DV, Haertdinov NN, Porokhnya MV, Zefirov AL, Sitdikova GF Carbon [monoxide affects electrical and contractile activity of rat myocardium](#). *J Biomed Sci*. 2011 Jun 15;18:40
21. Abramochkin DV, Haertdinov NN, Porokhnya MV, Zefirov AL, Sitdikova GF. Changes in the electrical and contractile activities of rat atrial myocardium caused by carbon monoxide. *Dokl Biol Sci*. 2011 Jul-Aug;439:187-90.
22. G. F. Sitdikova, A. V. Yakovlev, Y. G. Odnoshivkin, A. L. Zefirov Effects of Hydrogen Sulfide on the Exo and Endocytosis of Synaptic Vesicles in Frog Motor Nerve Endings// *Neurochemical Journal*, 2011, Vol. 5, No. 4, pp. 245–250.
23. Sitdikova GF, Khaertdinov NN, Zefirov AL Role [of calcium and potassium channels in effects of hydrogen sulfide on frog myocardial contractility](#). *Bull Exp Biol Med*. 2011 Jun;151(2):163-6.
24. Valiullina F.F., Sitdikova G.F. Effects and mechanisms of nitric oxide (II) action on transmitter release in mouse motor nerve terminal// *Neurophysiology*, Vol. 44, No. 6, December, 2012, P. 490-492
25. N. N. Khaertdinov, D. R. Ahmetshina, A. L. Zefirov, G. F. Sitdikova Hydrogen Sulfide in Regulation of Frog Myocardium Contractility // *Biochemistry (Moscow) Supplement Series A: Membrane and Cell Biology*, 2013, Vol. 7, No. 1, pp. 52–57
26. O. V. Yakovleva, M. U. Shafigullin, and G. F. Sitdikova The role of Nitric oxide in regulation of neurotransmitter release and processes of exo- and endocytosis of synaptic vesicles in mouse motor nerve endings *Neurochemical journal*, 2013, V.7 N2 P 103-110
27. O. B. Mitrukhina, A. V. Yakovlev, and G. F. Sitdikova The Effects of Hydrogen Sulfide on the Processes of Exo_ and Endocytosis of Synaptic Vesicles in the Mouse Motor Nerve Endings *Biochemistry (Moscow) Supplement Series A: Membrane and Cell Biology*, 2013, Vol. 7, No. 2, pp. 170–173.
28. Gerasimova E.V., A. V. Zakharov, J.A. Lebedeva, A.R. Igancio, M.G. Minlebaev, G.F. Sitdikova, R. Khazipov Sensory evoked responses in somatosensory cortex of neonatal rats// *Bulletin of Experimental Biology and Medicine* 2013
29. E. V. Gerasimova, A. V. Zakharov, Yu. A. Lebedeva, A. R. Inacio, M. G. Minlebaev, G. F. Sitdikova, R. N. Khazipov Gamma Oscillations in the Somatosensory Cortex of Newborn Rats // *Bulletin of Experimental Biology and Medicine*. - 2014, Vol. 156, p 295-298
30. EV Gerasimova, OV Yakovleva, AL, Zefirov, GF Sitdikova The role of ryanodine receptors in the effects of hydrogen sulfide on transmitter release in frog motor nerve endings *Bulletin of Experimental Biology and Medicine* 2013 V155. №1 P. 14-17
31. M. Y. Shafigullin, R. A. Zefirov, G. I. Sabirullina, A. L. Zefirov and G. F. Sitdikova Effects of a Hydrogen Sulfide Donor on Spontaneous Contractile Activity of Rat Stomach and Jejunum // *Bulletin of Experimental Biology and Medicine*, Vol. 157, No. 3, July, 2014 PHYSIOLOGY P302-306
32. Sitdikova GF, Fuchs R, Kainz V, Weiger TM and Hermann A (2014) Phosphorylation of BK channels modulates the sensitivity to hydrogen sulfide (H₂S). *Front. Physiol*. 5:431. doi:10.3389/fphys.2014.00431
33. Mechanisms by which calcium receptor stimulation modifies electromechanical coupling in isolated ventricular cardiomyocytes. Schreckenber R, Dyukova E, Sitdikova G, Abdallah Y, Schlyter KD. *Pflugers Arch*. 2014 Apr 1.
34. Guzel Sitdikova, Andrei Zakharov, Sona Janackova, Elena Gerasimova, Julia Lebedeva, Ana R. Inacio, Dilyara Zaynutdinova, Marat Minlebaev, Gregory L. Holmes Roustem Khazipov Isoflurane suppresses early cortical activity// *Annals of Clinical and Translational Neurology* 2014; 1(1): 15–26 (<http://onlinelibrary.wiley.com/doi/10.1002/acn3.16/full>)

RESEARCH MONOGRAPHS

1. AL Zefirov, GF Sitdikova Ion channels of excitable cells (structure, function, pathology) Kazan, Art-café, 2010, 270 p (in Russian)
2. Hermann, A., Sitdikova, G.F. & Weiger, T.M. (2012). BK Channels – Focus on Polyamines, Ethanol/Acetaldehyde and Hydrogen Sulfide (H₂S), In Patch Clamp Technique, InTech, Ed. F. S. Kaneez, p. 109-142, Online: <http://www.intechopen.com/books/patch-clamp-technique/bk-channels-focus-on-polyamines-ethanol-acetaldehyde-and-hydrogen-sulfide-h2s>
3. Hermann, A., Sitdikova, G.F. & Weiger, T.M. (2012). *Gasotransmitters: Physiology and Pathophysiology* (book), Eds. A. Hermann. G. Sitdikova & T. Weiger, Springer Press, Heidelberg, Germany,.
4. Hermann, A., Sitdikova, G.F. & Weiger, T.M. (2012). Modulated by Gasotransmitters – BK channels, In *Gasotransmitters: Physiology and Pathophysiology*, Eds. A. Hermann et al., Springer Press, Heidelberg, Germany, p.163-201, Review
5. Sitdikova G.F., Zefirov A.L. (2012). “Gasotransmitters on the regulation of neuromuscular transmission”. In *Gasotransmitters: Physiology and Pathophysiology*, Eds. A. Hermann et al., Springer Press, Heidelberg, Germany, p.163-201, Review
6. Khazipov R., Sitdikova G. Electrical activity in sensory cortex of the developing brain // In «Fundamental and translational medicine» Ed. Zhdanov, Kazan, 2014, c.42-61

CONFERENCES

- 2001 VIII Congress of Russian Physiological society, Kazan Russia. **Oral presentation**. “The effects of nitric oxide on neuromuscular transmission” Yakovlev A.V., Sitdikova G.F., Zefirov A.L 25-28.09.2001
- 2002 International Summer Workshop ‘Pharmacology of Synaptic Transmission in the Nervous System’ Kiev, Ukraine. **Oral presentation**. “Role of the cGMP and AMP dependent systems in the effects of nitric oxide on transmitter release and potassium currents in the frog neuromuscular junction” Yakovlev A.V., Sitdikova G.F., Zefirov A.L
- 2003 - International conference “Reception and intracellular signalization”, Moscow-Puschino. **Oral presentation** “ The opposite effects of low and high doses of L-arginine on transmitter release and ion channels of motor nerve endings” Sitdikova G.F., Yakovlev A.V., Garipova V.R., Zefirov A.L.
- 2003 2nd INMED conference “Transmitters and guiding signals in the formation of cortical networks”.Poster. La Ciotat, France. **Poster**. “Effects of L- and D-arginine stereoisomers on synaptic transmission” Sitdikova G.F., A Yakovlev, A Zefirov
- 2004 XIX Congress of Russian Physiological society. Ekateriburg, Russia. **Oral presentation**. “Retrograde modulation of neuromuscular transmission by gaseous messengers” Sitdikova G.F.
- 2004 International workshop on cell physiology St.Petersburg Russia Poster
- 2005 V Congress of Siberian Physiologists, Tomsk, Russia. **Oral presentation**. The role of guanylate and adenylate cyclases in the effects of carbon monoxide on evoked transmitter release Sitdikova G., Zefirov A. 26-30.06.2005
- 2005 International conference “Neurochemistry: fundamental and applied research”. Moscow. **Oral presentation**. The effects of gaseous messengers – NO and CO on neuromuscular transmission Sitdikova GF., Yakovlev A.V., Zefirov AL
- 2006 VIII East European Conference of the International Society of invertebrate Neurobiology. Simpler Nervous systems. Kazan. Russia. Poster. “cAMP-system in the effects of carbon monoxide in frog neuromuscular junction”. Sitdikova G.F., Zefirov A.L
- 2007 Reception and intracellular signalization Pushino, Moscow **Poster** Sitdikova, Permyakova, Zefirov The effects of CO on exo- and endocytosis of synaptic vesicles in motor nerve endings
- 2007 XX Congress of Russian Physiological society. **Poster**. Hydrogen sulfide as endogenous modulator of transmitter release in frog and mouse neuromuscular junctions. E.Gerasimova, V.Permyakova, Sitdikova G.F.
- 2008 6th Forum of European Neuroscience. - Geneva, Switzerland, **Poster** Sitdikova G. Hydrogen sulfide increases the activity of calcium-activated potassium channels (BK) of rat pituitary tumor (GH₃) cells/ G. Sitdikova, T.M. Weiger, A. Hermann
- 2009 11 Meeting of the "Austrian Neuroscience Association" (ANA). **Oral presentation** Sitdikova G.F., Gerasimova E.V., Zefirov A.L. Role of ryanodine receptors in effects of hydrogen sulfide on transmitter release at frog neuromuscular junction

- 2010 XXI Congress of Russian Physiological society, **oral presentation**, Sitdikova G.F., Zefirov A.L
The role of hydrogen sulfide in regulation of intracellular functions and molecular targets of its effects.
- 2010 7 th FENS Forum of European Neuroscience, July 3-7, 2010, Amsterdam, Netherlands. **Poster** -
Sitdikova G.F., Gerasimova E.V., Vologin S.G. Hydrogen sulfide as endogenous modulator of
transmitter release in mouse neuromuscular junction
- 2012 THE FIRST EUROPEAN CONFERENCE ON THE BIOLOGY OF H₂S SLOVAKIA,
SMOLENICE **Oral presentation** Hydrogen sulfide activates BK channels – role of
phosphorylation
- 2013 International school-conference “From neuron to brain”, Kazan, 2013, **oral presentation**
Effects of isoflurane on the brain activity in neonatal brain Sitdikova, Gerasimova, Khazipov
- 2014 Third International Conference on Hydrogen Sulfide in Biology and Medicine June 4 (Wed) – 6
(Fri), 2014, Kyoto, Japan **Poster** Guzel Sitdikova, Thomas Weiger, Anton Hermann Diallyl-
trisulfide (Allitridi) inhibits calcium-activated potassium (BK) currents of GH₃ cells
- 2014 Anti-Aging International Mini-Symposium 2014: Cell Signaling and Therapeutic Targets for
Geriatric and Inflammatory Diseases Kinki University Anti-Aging centre and Faculty of
Pharmacy, Higashi-Osaka 7th June, 2014 **Oral presentation** Sitdikova Hydrogen sulfide and
ion channels
- 2014 International symposium Gasotransmitters: Physiology and pathophysiology, Kazan, **oral
presentation** BK-channels - hydrogen sulfide (H₂S)/ A. Hermann, G. F. Sitdikova