Резюме

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Родился 21 марта 1965 года в городе Казань, Россия.

Образование

1998	**Доктор медицинских наук**, Казанский медицинский университет, Россия
1991	**Кандидат медицинских наук** (по специальности Физиология), Казанский медицинский университет, Россия
1982-1988	Лечебный факультет (диплом с отличием), Казанский медицинский университет, Россия
1978-1982	Физико-математический лицей № 131 г. Казани

Академические должности

1997 – наст.вр.	INSERM U901 (Национальный институт здравоохранения и исследований в области медицины), Марсель, Франция
1997	CR2 (научный сотрудник второго класса)
1999	CR1 (научный сотрудник первого класса)
2004	DR2 (директор исследований второго класса)
2012	DR1 (директор исследований первого класса)
2011- наст.вр.	Ведущий научный сотрудник, Лаборатория Нейробиологии (Казанский федеральный университет, Россия)
2003	Приглашенный ученый, Университет Ратджерса, штат Нью-Джерси, США (под руководством Ю.Бужаки)
2001-2002	Научный сотрудник-невролог, Детская больница (под руководством Г.Л.Холмса), Гарвардская медицинская школа, Бостон, штат Массачусетс, США
2002-2003	Научный сотрудник, Отделение Неврологии (под руководством Г.Л.Холмса), Дармутская медицинския школа, Хановер, штат Нью-Гэмпшир, США

Основные публикации

ZEFIROV A, BENISH T, FATKULLIN N, CHERANOV S, KHAZIPOV R. Localization of active zones. ***Nature*** 1995, 376:393-394.

LEINEKUGEL X, MEDINA I, KHALILOV I, BEN-ARI Y, KHAZIPOV R. Ca2+ oscillations mediated by the synergistic excitatory actions of GABA(A) and NMDA receptors in the neonatal hippocampus. ***Neuron*** 1997, 18:243-255.

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KHAZIPOV R, LUHMANN HJ (2006) Early patterns of electrical activity in the developing cerebral cortex of humans and rodents. ***Trends in Neurosciences*** 29: 414-418.

BEN-ARI Y, GAIARSA JL, TYZIO R, KHAZIPOV R (2007) GABA: a pioneer transmitter that excites immature neurons and generates primitive oscillations. ***Physiological Reviews*** 170:243-57.

COLONNESE MT, KHAZIPOV R (2010) "Slow activity transients" in infant rat visual cortex: a spreading synchronous oscillation patterned by retinal waves. ***Journal of Neuroscience*** 30:4325-4337.

COLONNESE M, A. KAMINSKA, M.MINLEBAEV, M. MILH, B. BLOEM, S. LESCURE, G. MORIETTE, C. CHIRON, Y. BEN-ARI & R. KHAZIPOV. (2010) A conserved switch in sensory processing prepares developing neocortex for vision. ***Neuron*** 67: 480-498.

MINLEBAEV M, COLONNESE M, TSINTSADZE T, SIROTA A, KHAZIPOV R. (2011) Early gamma oscillations synchronize developing thalamus and cortex. ***Science*** 334: 226-9.

MITRUKHINA O, SUCHKOV D, KHAZIPOV R, MINLEBAEV M. (2014) Imprecise Whisker Map in the Neonatal Rat Barrel Cortex. ***Cereb Cortex*** [Epub ahead of print].

Научные монографии

1. Khazipov R, Buzsaki G. (2009) Early activity in the developing cortex. In: ***Oxford Handbook of Developmental Behavioral Neuroscience*** Eds : Blumberg, Freeman, Robinson, Oxford Press
2. R Khazipov, Colonnese M, Minlebaev M. (2013) Neonatal Cortical Rhythms (Chapter 141). In: ***Neural Circuit Development and Function in the Healthy and Diseased Brain: Comprehensive Developmental Neuroscience, Volume 3,*** Elsevier Inc. Pages 131-153.

Участие в международных конференциях в качестве приглашенного докладчика

Children Epilepsy Conference, San Cervolo, Italy, 2005
Annual conference of the Belgian Society of Neuropediatrics, Brussels, 2005
TINS-INMED La Ciotat Meeting, 2005
SISSA Neuroscience Seminars, Trieste Italy 2005
TINN-Marseille Conference (F.Clarac), Marseille, 2005
European Epilepsy Society meeting, Helsinki, 2006
TINS-INMED La Ciotat Meeting, 2006
Society for Neuroscience meeting, Atlanta, 2006
International Congress on Children Catastrophic Epilepsies, Fulda, 2007
Neonatal cortical EEG Consensus Meeting, Helsinki, 2007
Charite Neuroscience Colloquium, Berlin, 2007
EPFL Neuroscience Colloquium, Lausanne, 2007
IBRO PENS School on Molecular Mechanisms of Synaptic Plasticity, Kazan, Russia 2007
VII World Congress on Neurohypophyseal Hormones, Regensburg, 2007
International meeting on Idiopatic Generalized Epilepsies: Developmental Aspects and Bridging Basic Science and Clinical Research, Antalya, Turkey 2007
FFRE Colloquium, Paris 2008
Gordon School on GABAergic inhibition, NH 2009
IUPS meeting and Satellite Conference on Anion Transporters and Volume regulation, Japan 2009
XIX Congress of SFNP, Rouen 2009
PENS HERTIE School on Development of GABA, Obergurgl, Austria 2010
EMBO workshop GABA signalling and brain networks, Amsterdam 2010
FENS, Symposium S41, Amsterdam 2010
ENI-Net Mini-Symposium “Formation of Neuronal Circuits” Alicante, Spain, 2010
Somatosensory Club FENS Satellite meeting, Marseille 2011
ICM Conference, Paris, 2011
International Symposium on Neonatal Seizures and Related Disorders, Tokyo, Japan, 2013
Neuroscience and Vision Symposium, Netherlands Institute for Neuroscience, Amsterdam, Netherlands, 2013
International Conference on Adaptation of developing organism, Jalchik, Russia 2014
Segerfalk-Pufendorf Symposium on Emerging technologies for exploring the normal and epileptic brain, Lund, Sweden 2014
Blankenese Conference on Brain Complexity: From Synaptic Dynamics to Connectomics, Hambourg, Germany 2014

Участие в организации международных конференций

1. INMED/TINS La Ciotat Meeting 2005 (Nature and Nurture in Brain Development)
2. INMED/TINS La Ciotat Meetings 2006 (Physiogenic and Pathogenic Oscillations)
3. Developmental Physiology Jalchik Meeting 2012
4. International conference “From Neuron to Brain” Kazan, 2013
5. International conference “Neurotechnologies”, Kazan 2013

6 International conference on Adaptation of developing organism, Jalchik, Russia 2014

Опыт экспертной оценки научных публикаций

- **Член редакционной коллегии** в научном журнале «Frontiers in Cellular Neuroscience»;
- **Научный рецензент** в следующих научных журналах: «Science», «Journal of Neuroscience», «Journal of Physiology», «Annals of Neurology», «European Journal of Neuroscience», «Synapse», «Regulatory Peptides», «Journal of Neurophysiology», «Epilepsia», «Brain Research Bulletin», «Neuroscience Letters», «Neuroscience», «Cerebral Cortex»
- **Рецензент заявок на научные гранты в следующих организациях:** Agence Nationale de la Recherche, Fondation pour la Recherche sur le Cerveau, CURE, National Institutes of Health

Опыт преподавания:

2011-2013	Лекции и семинары по нейробиологии и современным вопросам медицины, Казанский федеральный университет, Россия
2010	Научная школа FENS-IBRO, Обергургль, Австрия
2008 – наст.вр.	Diplôme Universitaire de Neurologie Experimentale, Париж, Франция
2006	Научная школа PENS, Казань, Россия
1991-1992	Курс физиологии, Казанский медицинский университет, Россия

Научное руководство:

Аспиранты и соискатели PhD-степени: X. Leinekugel (Researcher CR1 Inserm, Bordeaux); M. Milh (Practicien-Hospitalier at La Timone, Marseille); Валеева Г. (КФУ), S. Janackova (Inserm-INMED); в настоящее время: Митрухина О., Валиуллина Ф., Ахметшина Д. (КФУ).

Докторанты: I. Khalilov (CR1 Inserm), R. Tyzio (Ingeneer IR2 Inserm), Hanganu I (Professor, Hamburg University), V. Dzhala (Junior faculty at Mass. General Hospital, K. Staley's lab), Congar P. (Researcher at INRA), Petanjek Z. (Associate Professor, Zagreb University), Colonnese M. (Assistant Professor, Washington University), M. Minlebaev (CR1 Inserm), A.R. Inacio (Marie-Curie Fellowship). V. Tzinszadze (FRM fellowship).

Награды и гранты

2012	Премия Академии Наук Франции «Les grandes avancées françaises en biologie»
2011	Грант правительства РФ ведущим ученым
2005, 2011	Награда Французского Фонда Медицинских Исследований для научно-исследовательских групп (Equipe FRM Research Award)
2002	Стипендия программы Human Frontier Science Program (HFSP)
1997	Докторская стипендия Министерства образования Франции
1992	Докторский грант Фонда медицинских исследований Франции
1991	Докторский грант, НАТО
1987	Золотая медаль на конференции молодых исследователей

Патенты

«Компоненты для облегчения боли и стресса у плода и новорожденных детей» N 13/435,522

Руководство научными проектами

Название проекта	Источник финансирования	Размер/ Срок финансирования	Период	Предмет финансирования
Equipe FRM DEQ20110421301 : " Les activites electriques dans le cerveau immature"	Fondation pour la Recherche Médicale (FRM), France	300 000 евро 36 мес.	2011-2015	Заработная плата сотрудникам (кмн Минлебаев М.Г., лаборант Зайнутдинова Д.М.); расходные материалы для лаборатории
ANR-09-MNPS-006: "Les	Agence	417 476	2009-	Зарплата сотрудникам

activites precoces dans le cerveau immature"	Nationale pour la Recherche, France	евро 48 мес.	2014	(postdoctoral fellow A.Malvache, PhD student S.Janackova); расходные материалы для лаборатории
Грант ведущим ученым РФ 220 11.G34.31.0075: "Ранняя активность в развивающемся мозге"	Правительство РФ	150 000 000 руб. 36 мес.	2011-2013	Инфраструктура, исследовательское оборудование и расходные материалы для Лаборатории Нейробиологии в Казанском федеральном университете; зарплата аспирантам, научным сотрудникам с ученой степенью, лаборантам
Продление **Гранта ведущим ученым РФ 220 11.G34.31.0075:** "Ранняя активность в развивающемся мозге"	Правительство РФ	45 000 000 руб. 24 мес.	2014-2015	Исследовательское оборудование и расходные материалы для Лаборатории Нейробиологии в Казанском федеральном университете; зарплата аспирантам, научным сотрудникам с ученой степенью, лаборантам
Программа повышения конкурентоспособности Казанского федерального университета среди академических центров и университетов мира	Правительство РФ	12 530 000 руб. 24 мес.	2014-2015	Исследовательское оборудование и расходные материалы для Лаборатории Нейробиологии в Казанском федеральном университете; зарплата аспирантам, научным сотрудникам с ученой степенью, лаборантам
Постановление правительства № 755 в Казанском федеральном университете	Правительство РФ	15 000 000 руб. 36 мес.	2014-2016	Исследовательское оборудование и расходные материалы для Лаборатории Нейробиологии в Казанском федеральном университете; зарплата аспирантам, научным сотрудникам с ученой степенью, лаборантам

Научные публикации

GINIATULLIN RA, KHAZIPOV R., KHAMITOV KS. Comparison of the action of hyperpolarization and ethanol on frog end- plate currents at different acetylcholine receptor densities. ***Neurophysiology***, 1988, 20:128-130.

GINATULLIN RA, KHAZIPOV R. Role of the density of cholinoreceptors in the decay of the postsynaptic current. ***Bulletin of Experimental Biology and Medicine,*** 1988, 106:134-136.

GINIATULLIN RA, KHAZIPOV R. The development of desensitization during rhythmic activity of the synapse and in the course of a single postsynaptic current. ***Bulletin of Experimental Biology and Medicine,*** 1989, 108: 654-657.

GINIATULLIN RA, KHAMITOV G, KHAZIPOV R., MAGAZANIK LG, NIKOLSKY E, SNETKOV VA, VYSKOCIL F. Development of desensitization during repetitive end-plate activity and single end-plate currents in frog muscle. ***Journal of Physiology (London)***, 1989, 412:113-122.

GINIATULLIN RA, KHAZIPOV R. Effect of calcium ions on miniature end- plate currents after the disruption of mediator hydrolysis. ***Neurophysiology,*** 1990, 22:556-559.

MAGAZANIK LG, SNETKOV VA, GINIATULLIN RA, AND KHAZIPOV R**.** Changes in the time course of miniature endplate currents induced by bath-applied acetylcholine. ***Neuroscience Letters,*** 1990, 113:281-285.

KHAZIPOV R., AKHMETZIANOV NS, GINIATULLIN RA. Homologs of oxaphospholanol derivatives: a new family of acetylcholine receptor channel blockers. ***Biological Membranes***, 1990, 124:1334-1341.

GINIATULLIN RA, KHAZIPOV R. End plate currents with a physiological level of quantal secretion and after potentiation of the mediator release by 4-aminopyridine. ***Neurophysiology,*** 1991, 23: 48-56.

ZEMSKOVA SN, EDER K, GINIATULLIN RA, ZEFIROV AL, AND KHAZIPOV R. The early postdenervation changes in the properties of the postsynaptic membrane of amphibian muscle fiber. ***Physiological Journal (USSR)***, 1991; 77:57-65.

GINIATULLIN RA, KHAZIPOV R, ORANSKAIA TI. Non-quantal secretion of a mediator as a factor determining consequences of acetylcholinesterase inhibition. ***Bulletin of Experimental Biology and Medicine***, 1992;114:6-7.

GINIATULLIN RA, KHAZIPOV R., VYSKOCIL F. Critical quantum content for shortening of endplate currents in the frog skeletal muscle. ***Physiology Research***, 1992, 41:331-332.

GINIATULLIN RA, ORANSKAIA TI, KHAZIPOV R. Effects of "non-quantal" acetylcholine on the sensitivity of the postsynaptic membrane: action of ouabain and imitation of these effects by exogenous acetylcholine. ***Neurophysiology,*** 1992; 24:396-404.

KHAZIPOV R. AND GINIATULLIN RA . Effect of magnesium ions on the functional state of postsynaptic membrane by modulation of the level of non-quantal secretion of the mediator. ***Neurophysiology***, 1992; 24:97-100.

GINIATULLIN RA, KHAZIPOV R., VYSKOCIL F. A correlation between quantal content and decay time of endplate currents in frog muscles with intact cholinesterase. ***Journal of Physiology (London)***, 1993; 466:95-103.

GINIATULLIN RA, KHAZIPOV R., ORANSKA TI, NIKOLSKY EE, VORONIN VA, VYSKOCIL F . The effect of non-quantal acetylcholine release on quantal miniature currents at mouse diaphragm. ***Journal of Physiology (London)***, 1993;466:105-114.

KHAZIPOV R.**,** BREGESTOVSKI P, BEN-ARI Y. Hippocampal inhibitory interneurons are functionally disconnected from excitatory inputs by anoxia. ***Journal of Neurophysiology***, 1993; 70:2251-2259.

KHAZIPOV R.**,** RAGOZZINO D, BREGESTOVSKI P. Kinetics and Mg^{2+} block of N-methyl-D-aspartate receptor channels during postnatal development of hippocampal CA3 pyramidal neurons. ***Neuroscience***, 1995; 69:1057-1065.

CONGAR P, KHAZIPOV R.**,** BEN-ARI Y. Direct demonstration of functional disconnection by anoxia of inhibitory interneurons from excitatory inputs in rat hippocampus. ***Journal of Neurophysiology*** 1995, 73:421-426.

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KHAZIPOV R.**,** CONGAR P, BEN-ARI Y. Hippocampal CA1 lacunosum-moleculare interneurons: modulation of monosynaptic GABAergic IPSCs by presynaptic GABAB receptors**.** ***Journal of Neurophysiology*** 1995, 74:2126-2137.

ZEFIROV A, BENISH T, FATKULLIN N, CHERANOV S, KHAZIPOV R. Localization of active zones. ***Nature*** 1995, 376:393-394.

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MCLEAN HA, CAILLARD O, KHAZIPOV R., BEN-ARI Y, GAIARSA JL. Spontaneous release of GABA activates $GABA_B$ receptors and controls network activity in the neonatal rat hippocampus. ***Journal of Neurophysiology,*** 1996, 76:1036-1046.

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BERNARD CL, HIRSCH JC, KHAZIPOV R., BEN-ARI Y, GOZLAN H. Redox modulation of synaptic responses and plasticity in rat CA1 hippocampal neurons. ***Experimental Brain Research***, 1997, 113:343-352.

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KHALILOV I, ESCLAPEZ M, MEDINA I, AGGOUN D, LAMSA K, LEINEKUGEL X, KHAZIPOV R.**,** BEN-ARI Y. A novel in vitro preparation: the intact hippocampal formation. ***Neuron***, 1997, 19:743-749.

LEINEKUGEL X, MEDINA I, KHALILOV I, BEN-ARI Y, KHAZIPOV R. Ca^{2+} oscillations mediated by the synergistic

LEINEKUGEL X, KHALILOV I, BEN-ARI Y, KHAZIPOV R. Giant depolarizing potentials: the septal pole of the hippocampus paces the activity of the developing intact septo-hippocampal complex in vitro**.** ***Journal of Neuroscience,*** 1998, 18:6349-6357.

KHAZIPOV R.**,** DESFRERES L, KHALILOV I, BEN-ARI Y. Three-independent-compartment chamber to study in vitro commissural synapses. ***Journal of Neurophysiology,*** 1999, 81:921-924.

DZHALA V, DESFRERES L, MELYAN Z, BEN-ARI Y, KHAZIPOV R. Epileptogenic action of caffeine during anoxia in the neonatal rat hippocampus. ***Annals of Neurology,*** 1999, 46: 95-102.

KHALILOV I, DZHALA V, BEN-ARI Y, KHAZIPOV R. Dual role of GABA in the neonatal rat hippocampus**.** ***Developmental Neuroscience,*** 1999, 21:310-319.

KHALILOV I, DZHALA V, MEDINA I, LENEKUGEL X, MELYAN Z, LAMSA K, KHAZIPOV R.**,** BEN-ARI Y. Maturation of kainate-induced epileptiform activities in interconnected intact neonatal limbic structures *in vitro*. ***European Journal of Neuroscience***, 1999, 11: 3468-3480.

DZHALA V, BEN-ARI Y, KHAZIPOV R. Seizures accelerate anoxia-induced neuronal death in the neonatal rat hippocampus. ***Annals of Neurology***, 2000, 48:632-640.

DZHALA V, KHALILOV I., BEN-ARI Y, KHAZIPOV R. Neuronal mechanisms of the anoxia-induced network oscillations in the rat hippocampus. ***Journal of Physiology (Lond),*** 2001, 536: 521-531

KHAZIPOV R., ESCLAPEZ M, CAILLARD O, BERNARD C, KHALILOV I, TYZIO R, HIRSCH J, DZHALA V, BERGER B, BEN-ARI Y. Early development of neuronal activity in the primate hippocampus ***in utero. Journal of Neuroscience***, 2001, 21: 9770-9781.

GROC L., PETANJEK Z., GUSTAFSSON B., BEN ARI Y., HANSE E., KHAZIPOV R. In vivo blockade of neural activity alters dendritic development of neonatal CA1 pyramidal cells. ***European Journal of Neuroscience,*** 2002, 16: 1931-1938.

LEINEKUGEL X*, KHAZIPOV R.***,** CANNON R, HIRASE H, BEN-ARI Y, BUZSAKI G. Correlated bursts of activity in the neonatal hippocampus *in vivo. **Science***, 2002, 296: 2049-2052.

GROC L., PETANJEK Z., GUSTAFSSON B., BEN ARI Y., KHAZIPOV R., AND HANSE E. Compensatory dendritic growth of CA1 pyramidal cells following growth impairment in the neonatal period. ***European Journal of Neuroscience,*** 2003, 18: 1332-1336.

KHAZIPOV R. AND HOLMES G.L. (2003) Synchronization of kainate-induced epileptic activity via GABAergic inhibition in the superfused rat hippocampus in vivo. ***Journal of Neuroscience,*** 2003, 23: 5337-5341.

TYZIO R., IVANOV A., BERNARD C., HOLMES G.L., BEN ARI Y., AND KHAZIPOV R. The membrane potential of CA3 hippocampal pyramidal cells during postnatal development. ***Journal of Neurophysiology,*** 2003, 90: 2964-2972

KHAZIPOV R., KHALILOV I., TYZIO R., MOROZOVA E., BEN-ARI Y, AND HOLMES G.L. Developmental changes in GABAergic actions and seizure susceptibility in the rat hippocampus. ***European Journal of Neuroscience,*** 2004, 19: 590-600

KHAZIPOV R., SIROTA A., LEINEKUGEL X, HOLMES G., BEN-ARI Y., BUZSAKI G. Early motor activity drives spindle-bursts in developing somatosensory cortex. ***Nature***, 2004, 432: 758-761

ISAEV D, ISAEVA E, KHAZIPOV R, HOLMES GL (2005) Anticonvulsant action of GABA in the high potassium-low magnesium model of ictogenesis in the neonatal rat hippocampus in vivo and in vitro ***Journal of Neurophysiology*** 94: 2987-2992.

TYZIO R, COSSART R, KHALILOV I, MINLEBAEV M, HUBNER CA, REPRESA A, BEN ARI Y, KHAZIPOV R (2006) Maternal Oxytocin Triggers a Transient Inhibitory Switch in GABA Signaling in the Fetal Brain During Delivery ***Science***. 314: 1788-1792.

HANGANU IL, BEN ARI Y, KHAZIPOV R (2006) Retinal waves trigger spindle bursts in the neonatal rat visual cortex ***Journal of Neuroscience*** 26: 6728-6736.

MILH M, KAMINSKA A, HUON C, LAPILLONNE A, BEN ARI Y, KHAZIPOV R (2006) Rapid Cortical Oscillations and Early Motor Activity in Premature Human Neonate ***Cerebral Cortex*** 17: 1582-94.

ISAEVA E, ISAEV D, KHAZIPOV R, HOLMES GL (2006) Selective impairment of GABAergic synaptic transmission in the flurothyl model of neonatal seizures ***European Journal of Neuroscience***. 23: 1559-1566.

ISAEV D, ISAEVA E, KHAZIPOV R, HOLMES GL (2007) Shunting and hyperpolarizing GABAergic inhibition in the high-potassium model of ictogenesis in the developing rat hippocampus ***Hippocampus***. 17: 210-219.

MINLEBAEV M, BEN-ARI Y, KHAZIPOV R (2007) Network mechanisms of spindle-burst oscillations in the neonatal rat barrel cortex in vivo ***Journal of Neurophysiology*** 97: 692-700.

TYZIO R, HOLMES GL, BEN-ARI Y, KHAZIPOV R (2007) Timing of the Developmental Switch in GABA(A) Mediated Signalling From Excitation to Inhibition in CA3 Rat Hippocampus Using Gramicidin Perforated Patch and Extracellular Recordings ***Epilepsia*** 48:96-105

HANGANU IL, BEN ARI Y, KHAZIPOV R (2007) Cholinergic modulation of spindle bursts in the neonatal rat visual cortex ***Journal of Neuroscience*** 27: 5694 – 5705

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