CURRICULUM VITAE

Name: IRINA V. ODINOKOVA

Date of birth: April 11, 1975

Place of birth: Samara region, Russia (former USSR)

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Citizenship: Russia

Education:

1992-1997: Undergraduate student in the Department of Biology, Nizhnii Novgorod State University, Russia. Supervisor: Prof. V. Opritov
BS, "Induction of Permeability Transition Pore in the Inner Mitochondrial Membrane and Tumour Cell Death under Oxidative Stress" – diploma project done at the laboratory of Prof. Yu.V. Evtodienko, ITEB, RAS, Pushchino.
1997-1999: Master Course, Biophysics, Pushchino State University.
MS, "Formation and Biological Importance of Permeability Transition Pore in Tumour Cell Mitochondria" – MS thesis. Supervisors: Prof. Yu.V. Evtodienko and Dr. V.V. Teplova.
1999-2002: Post-graduate student, Laboratory of Cell Biochemistry and Bioenergetics, Institute of Theoretical and Experimental Biophysics, RAS (Pushchino, Russia). Supervisors: Prof. Yu.V. Evtodienko and Dr. T.S. Azarashvily.
Ph.D. Thesis: "Phosphorylation of 3.5 kDa polypeptide in mitochondria: identification and involvement in the regulation of mitochondrial functions".

Academic appointments:

2001 –2004: Junior Research Scientist, Laboratory of Cell Biochemistry and Bioenergetics, Institute of Theoretical and Experimental Biophysics, RAS
2004 –2008: Research Scientist, Laboratory of Cell Engineering, Institute of Theoretical and Experimental Biophysics, RAS
2008 –2014: Senior Research Scientist, Laboratory of Cell Engineering, Institute of Theoretical and Experimental Biophysics, RAS
2014- present: Senior Research Scientist, Laboratory of Pharmacological Regulation of Cell Resistance, Institute of Theoretical and Experimental Biophysics, RAS

Fellowship: **Sept, 2002**: Visiting scientist, Helsinki University, Helsinki, Finland, Prof. Nils-Erik Saris. "Isolation of Subunit c of FoF_1 ATPase for N-terminal Sequence".

2004-2008: Visiting researcher, Department of Medicine, University of California Los Angeles and VA Greater Los Angeles Healthcare System (laboratory of Prof. A.S. Gukovskaya), Los Angeles, CA, USA

Feb 2012 – Feb 2013: Visiting researcher, Department of Medicine, University of California Los Angeles and VA Greater Los Angeles Healthcare System (laboratory of Prof. A.S. Gukovskaya), Los Angeles, CA, USA

Research projects:

2004-2008: "Apoptosis and Necrosis in Pancreatitis" – supported by the NIH grant 1R01 DK059936 to Prof. A.S. Gukovskaya.

2005-2007: "Regulation of mitochondrial function by second messenger system. The role of 43 kDa and 17 kDa phosphoproteins in the induction of apoptosis in mitochondria" – supported by the Russian Foundation for Fundamental Research (RFBR) Fund, # 05-04-49487 to Prof. Yu.V Evtodienko.

2006-2008: "New mechanisms of involvement of peripheral benzodiazepine receptor and its selective ligands in the initial stages of programmed cell death in brain mitochondria" – supported by the RFBR # 06-04-48763 to Dr. T.S. Azarashvili.

2008-2010: "Regulation of mitochondrial functions by cyclic nucleotides. Role of 46 kDa phosphodiesterase (CNP) in the initial stages of apoptosis in mitochondria" –supported by the RFBR # 08-04-00723 to Dr. O.V. Krestinina.

2009-2011: "Mechanisms of regulation of cytochrome c release from pancreatic mitochondria as a determining factor of induction of acinar cell apoptosis during pancreatitis" – supported by the RFBR # 09-04-00739 to Dr. I.V. Odinokova.

2011-2013: "Investigation of antioxidants effects on the oxidative stress in rat brain mitochondria for elucidating a novel protective mechanism in aging" – supported by the RFBR #11-04-01321 to Dr. O.V. Krestinina.

2012-2013: "Apoptosis and necrosis in pancreatitis" – supported by the NIH grant 2R01 DK059936 to Prof. A.S. Gukovskaya.

2013-2015: "Identification of the new protein-targets for neuroprotection in brain mitochondria, initiating induction of the programmed cell death (apoptosis)" – supported by the RFBR # 13-04-00935 to Dr. T.S. Azarashvili.

2014-2016: "Investigation of melatonin role in TSPO-modulated regulation of mPTP in rat liver and brain mitochondria in aging" – supported by the RFBR #14-04-00625 to Dr. O.V. Krestinina.

Technical skills:

- Animal models of acute pancreatitis
- Isolation of pancreatic acinar cells
- Isolation of mitochondria from animal tissues, primary and cultured cells

- Evaluation of mitochondrial functions by using TPP^+- and O_2-electrodes, and fluorescent probes in isolated mitochondria and ***in situ*** in permeabilized cells
- Phosphorylation of mitochondrial proteins
- TLC of phospholipids,
- Western blot
- Confocal microscopy

Research interests:

- Processes of energy transformation in mitochondria of normal and tumor cells.
- Ca^{2+} transport, mitochondrial permeability transition pore, regulation of FoF1-ATPase and ATP synthesis/hydrolysis in mitochondria, second messenger systems and phosphorylation/dephosphorylation of mitochondrial proteins.
- Role of mitochondria in the regulation of acinar cell death in pancreatitis.

Bibliography:

Published peer-reviewed

1. Teplova V., Kudrjavtsev A., **Odinokova I.**, Evtodienko Yu. Saris N-E. Effect of prooxidants on mitochondrial permeability transition and cell death in Ehrlich ascites tumour cells. Biochemistry and Molecular Biology International, 1998, 45, 501-510. PMID:9679650.
2. Azarashvili T.S., **Odinokova I.V.**, Evtodienko Y.V. Phosphorylation of a low-molecular-weight polypeptide in rat liver mitochondria and dependence of its phosphorylation on mitochondrial functional state. Biochemistry (Mosc), 1999, 64(5), 556-560. PMID:10381617.
3. Evtodienko Y.V., Azarashvili T.S., Teplova V.V., **Odinokova I.V.**, Saris N. Regulation of oxidative phosphorylation in the inner membrane of rat liver mitochondria by calcium ions. Biochemistry (Mosc), 2000, 65(9), 1023-1026. PMID:11042493.
4. Teplova V, Evtodienko Y, **Odinokova I**, Kruglov A, Kudrjavtsev A. Suppression of mitochondrial permeability transition pore and induction of lymphoma P388 cell death by cyclosporin A. IUBMB Life, 2000, 50(1), 75-80. PMID:11087125.
5. Azarashvili T.S., Tyynela J., **Odinokova I.V.**, Grigorjev P.A., Baumann M., Evtodienko Y.V., Saris N.E. Phosphorylation of a peptide related to subunit c of the F_0F_1-ATPase/ATP synthase and relationship to permeability transition pore opening in mitochondria. J. Bioenerg. Biomembr., 2002, 34(4), 279-284. PMID:12392191.
6. Azarashvili T., Krestinina O., **Odinokova I.**, Evtodienko Y., Reiser G. Physiological Ca^{2+} level and Ca^{2+}-induced Permeability Transition Pore control protein phosphorylation in rat brain mitochondria. Cell Calcium, 2003, 34(3), 253-259. PMID:12887972.
7. Saris N.-E., Teplova V.V., **Odinokova I.V.**, Azarashvily T.S. Interference of calmidazolium with measurement of mitochondrial membrane potential using the tetraphenylphosphonium electrode or the fluorescent probe rhodamine 123. Anal. Biochem., 2004, 328(2), 109-112. PMID:15113685.
8. Edderkaoui M., **Odinokova I.**, Ohno I., Gukovsky I, Go V.L.W., Pandol S.J., Gukovskaya A.S. Ellagic acid induces apoptosis through inhibition of nuclear factor κB in pancreatic cancer cells. World J. Gastroenterol., 2008, 14(23), 3672-3680. PMID:18595134.
9. Krestinina O.V., Grachev D.E., **Odinokova I.V.**, Reiser G, Evtodienko Y.V., Azarashvili T.S. Effect of peripheral benzodiazepine receptor (PBR/TSPO) ligands on opening of Ca^{2+}-induced pore and phosphorylation of 3.5-kDa polypeptide in rat brain mitochondria. Biochemistry (Mosc), 2009, 74(4), 421-429. PMID:19463096.
10. **Odinokova I.V.,** Sung K.-F., Mareninova O.A., Hermann K., Evtodienko Yu., Andreyev A., Gukovsky I., Gukovskaya A.S. Mechanisms regulating cytochrome c release in pancreatic mitochondria. Gut, 2009, 58(3), 431-442. PMID:18596195.
11. Sung K.-F., **Odinokova I.V.,** Mareninova O.A., Rakonczay Z.J., Hegyi P., Pandol S.J., Gukovsky I., Gukovskaya A.S. Prosurvival Bcl-2 proteins stabilize pancreatic mitochondria and protect against necrosis in pancreatitis. Exp. Cell Res., 2009, 315(11), 1975-1989. PMID:19331832.
12. Mikoulinskaia G.V., **Odinokova I.V.**, Zimin A.A., Lysanskaya V.Y., Feofanov S.A., Stepnaya O.A. Identification and characterization of the metal ion-dependent l-alanoyl-d-glutamate peptidase encoded by bacteriophage T5. FEBS Journal, 2009, 276(24), 7329-7342. PMID:19919545.

13. Ohno I., Eibl G., **Odinokova I.**, Edderkaoui M., Damoiseaux R.D., Yazbec M., Abrol R., Goddard III W.A., Yokosuka O, Pandol S.J. Gukovskaya A.S. Rottlerin stimulates apoptosis in pancreatic cancer cells through interactions with proteins of the Bcl-2 family. Am. J. Physiol. Gastrointest. Liver Physiol., 2010, 298(1), G63-73. PMID:19762431.
14. Nakamura Y., Do J.H., Yuan J., **Odinokova I.V.,** Mareninova O.A., Gukovskaya A.S., Pandol S.J. Inflammatory cells regulate p53 and caspases in acute pancreatitis. Am. J. Physiol. Gastrointest. Liver Physiol., 2010, 298 (1), G92-G100. PMID:19850968.
15. Teplova V. V., **Odinokova I. V.**, Holmuhamedov E. L. Isoforms of voltage-dependent anion channel and experimental models for studies of their physiological role. Biological Membranes (Moscow), 2011. 28(3), 163-173.
16. Azarashvili T.S., **Odinokova I.V.,** Krestinina O.V., Baburina Y.L., Grachev D.E., Teplova V.V., Holmuhamedov E.L. Role of phosphorylation of porin (VDAC) in regulation of mitochondrial outer membrane under normal conditions and alcohol intoxication. Biochemistry (Moscow) Supplement. Series A: Membrane and Cell Biology. 2011. T. 5. № 1. C. 11-20.
17. Krestinina O. V., **Odinokova I. V.**, Baburina Yu. L., Azarashvili T. S. Age-related effect of melatonin on permeability transition pore opening in rat brain mitochondria, Biochemistry (Moscow) Supplement Series A: Membrane and Cell Biology, 2013, 7(4), 286-293.
18. Azarashvili T., **Odinokova I.**, Krestinina O., Baburina Yu., Teplova V., Janahgir A., Holmuhamedov E. Acute ethanol exposure increases phosphorylation of mitochondrial proteins by mitochondria associated glycogen synthase kinase-3β (GSK-3β). Innovative journal of medical and health sciences, 2013, 3 (4), p. 163-170.
19. Azarashvili T., **Odinokova I.**, Bakunts A., Ternovsky V., Krestinina O., Tyynela J., Saris N-E. Role of mitochondrial subunit c of FoF1-ATPase and subunit c of storage body in the permeability transition. Effect of the phosphorylation level of subunit c on pore opening. Cell Calcium, 2014, 55 (2), 69-77. PMID: 24380588.
20. Baburina Yu. L., Gordeeva A. E., Moshkov D. A., Krestinina O. V., Azarashvili A. A., **Odinokova I. V.**, Azarashvili T. S. Interaction of myelin basic protein and 2',3'-cyclic nucleotide phosphodiesterase with mitochondria, Biochemistry (Moscow), 2014, 79(6), 555-565.
21. Azarashvili T., Baburina Y., Grachev D., Krestinina O., Papadopoulos V., Lemasters J.J., **Odinokova I.**, Reiser G. Carbenoxolone induces permeability transition pore opening in rat mitochondria via the translocator protein TSPO and connexin43. Arch Biochem Biophys. 2014, 558, 87-94.

Invited Reviews and Book Chapters:

1. A.S. Gukovskaya, O.A. Mareninova, **I.V. Odinokova**, K.F. Sung, A. Lugea, L. Fisher, Y.L. Wang, I. Gukovsky, S.J. Pandol. (2006) Cell death in pancreatitis: Effects of alcohol. J. Gastroenterol. Hepatol., 21: S10-S13. PMID:16958657.
2. **Odinokova I.V.**, Sung K.-F., Mareninova O.A., Hermann K., Gukovsky I., Gukovskaya A.S. Mitochondrial mechanisms of death responses in pancreatitis. J. Gastroenterol. Hepatol., 2008, 23(Suppl. 1), S25-30. PMID:18336659.
3. Mikoulinskaia G.V., **Odinokova I.V.**, Zimin A.A., Stepnaya O.A. L-alanoyl-D-glutamate peptidase (bacteriophage T5). 2013, Chapter 316, pp. 1411-1414. In: Handbook of Proteolytic Enzymes, 3rd Edition, Elsevier Ltd., edited by Neil Rawlings and Guy Salvesen, ISBN: 978-0-12-382219-2.

And more than 50 theses in the Conference Proceedings.