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Sergey Missan

Education

- 1998–2005** Dalhousie University, Halifax, Nova Scotia, Canada. Department of Physiology and Biophysics.
Ph.D. in Physiology and Biophysics.
“Volume-sensitive K^+ current in guinea pig ventricular myocytes”.
- 1992–1997** Kiev State University, Kiev, Ukraine. Department of Biology.
M.Sc.-equivalent degree in Biophysics.
“Non-linear dynamics of the frog skeletal muscle fiber contractions”.

Work Experience

- 2008–present** Senior Software Developer (Electrophysiology, Electrochemistry, Neurobiology), HEKA Electronics Inc., Mahone Bay, NS, Canada.
Developed scientific software for data acquisition and analysis for electrophysiology, electrochemistry, and neurobiology applications.
- 2005–present** Founder and Managing Partner (Research and Development), Simulogic Inc., Halifax, NS, Canada.
Developed scientific software to perform realistic simulations of electrical activity in cardiac myocytes, neurons, and skeletal muscle cells.
- 2005–2008** Postdoctoral fellow, Department of Physiology and Biophysics, Dalhousie University, Halifax, NS, Canada.
Studied regulation of expressed KCNQ channels by tyrosine phosphorylation.

- 2000–2003** Teaching Assistant, Department of Physiology and Biophysics, Dalhousie University, Halifax, NS, Canada.
Taught Exercise Physiology, graduate-level Cell Physiology classes.
- 1993–1998** Senior lab assistant, Department of Movement Physiology, Bogomoletz Institute of Physiology, Kiev, National Academy of Sciences of Ukraine.
Studied non-linear dynamic of skeletal muscle contraction, length–force hysteresis.

Research Experience

- Conducted whole cell patch-clamp experiments in isolated guinea pig and rabbit cardiac myocytes. Performed patch-clamp recordings in HEK and BHK cells heterologously expressing potassium channels.
- Developed CESE, cell electrophysiology simulation environment. CESE is currently used in hundreds of laboratories to model ionic currents and cardiac action potentials and to predict the effects of drugs on cardiac electrical activity.
- Performed microsurgical isolation and tensiometry of single frog skeletal muscle fibers. Developed custom feedback-controlled tensiometry hardware and software for controlling isotonic and isometric length–force measurements in skeletal muscle fibers.

Awards and Funding

- 2008** Nova Scotia Economic Development's Innovation and Productivity Voucher Pilot Program.
- 2005–2007** NSHRF (Nova Scotia Health Research Foundation) Postdoctoral Fellowship.
- 2004** Dalhousie University Department of Graduate Studies Travel Award.
- 1998–2003** CIHR (Canadian Institutes of Health Research) Ph.D. Studentship.
- 1994** Soros Student Scholarship (International Soros Support Education Program-ISSEP) for achievements in study and research.

Professional Associations

- 2010 Nokia Certified Qt Specialist.
2010 Nokia Certified Qt Developer.
2006–2007 Member, Biophysical Society.

Peer Review

Natural Sciences and Engineering Research Council of Canada (NSERC), Ad hoc reviewer.

Journal Articles

- [1] **Missan S**, Qi J, Crack J, McDonald TF, Linsdell P.
Regulation of wild-type and mutant KCNQ1/KCNE1 channels by tyrosine kinase. *Pflugers Arch.* 2009 Jul;458(3):471–80.
- [2] **Missan S**, Linsdell P, McDonald TF.
Involvement of tyrosine kinase in the hyposmotic stimulation of I_{Ks} in guinea-pig ventricular myocytes. *Pflugers Arch.* 2008 Jun;456(3):489–500.
- [3] Vantol B, **Missan S**, Crack J, Moser S, Baldrige W, Linsdell P, Cowley E.
Contribution of KCNQ1 to the regulatory volume decrease in the human mammary epithelial cell line, MCF-7. *Am J Physiol Cell Physiol.* 2007 Sep;293(3):C1010–9.
- [4] **Missan S**, Linsdell P, McDonald TF.
Role of kinases and G-proteins in the hyposmotic stimulation of cardiac I_{Ks} . *Biochim Biophys Acta.* 2006 Oct;1758(10):1641–52.
- [5] **Missan S**, Zhabyeyev P, Linsdell P, McDonald TF.
Insensitivity of cardiac delayed-rectifier I_{Kr} to tyrosine phosphorylation inhibitors and stimulators. *Br J Pharmacol.* 2006 Jul;148(5):724–31.

- [6] **Missan S**, Linsdell P, McDonald TF.
Tyrosine kinase and phosphatase regulation of slow delayed-rectifier K^+ current in guinea-pig ventricular myocytes. *J Physiol*. 2006 Jun;573(2):469–82.
- [7] **Missan S**, McDonald TF.
CESE: Cell Electrophysiology Simulation Environment. *Appl Bioinformatics* 2005 Aug;4(2):155–6.
- [8] **Missan S**, Zhabyeyev P, Dyachok O, Ogura T, McDonald TF.
Inward rectifier K^+ current in heart cells exposed to hyperosmotic solutions. *J Mem Biol*. 2004 Dec;202(3):151–60.
- [9] **Missan S**, McDonald TF.
Cardiac Na^+-Ca^{2+} exchanger current induced by tyrosine kinase inhibitors. *Br J Pharmacol*. 2004 Dec;143(8):943–51.
- [10] Zhabyeyev P, Asai T, **Missan S**, McDonald TF.
Transient outward K^+ current in guinea-pig ventricular myocytes dialyzed with low- K^+ solution. *Am J Physiol Cell Physiol*. 2004 Nov;287(5):C1396–C1403.
- [11] Shuba LM, **Missan S**, Linsdell P, McDonald TF.
Selective block of swelling-activated Cl^- channels over CFTR Cl^- channels in mammalian ventricular myocytes. *Eur J Pharmacol*. 2004 May;491(2–3):111–20.
- [12] **Missan S**, Zhabyeyev P, Dyachok O, Jones SE, McDonald TF.
Block of cardiac delayed-rectifier and inward-rectifier K^+ currents by nisoldipine. *Br J Pharmacol*. 2003 Nov;140(5):863–70.
- [13] Jones SE, **Missan S**, Zhabyeyev P, McDonald TF.
Selective phenylalkylamine block of I_{Kr} over other K^+ currents in guinea-pig ventricular myocytes. *Br J Pharmacol*. 2000 Dec;131(8):1809–16.
- [14] Zhabyeyev P, **Missan S**, Jones SE, McDonald TF.
Low-affinity block of cardiac K^+ currents by nifedipine. *Eur J Pharmacol*. 2000 Aug;401(2):137–43.

Magazine Articles

- [1] Vascotto S, **Missan S**, La C.
CESE Plus: a computational approach for accelerating electrophysiology research. *Laboratory Focus* 2009 Jul;13(4):8–11.

Abstracts

- [1] **Missan S**, Crack J, McDonald TF, Linsdell P.
Role of tyrosine phosphorylation in KCNQ1/KCNE1 K⁺ channel function. *Biophysical J.* 2007 Jan;92(supp):597a.
- [2] vanTol B, **Missan S**, Crack J, Moser S, Linsdell P, Cowley E.
Role of KCNQ1 in the regulatory volume decrease response of mammary epithelial cells. *Biophysical J.* 2007 Jan;92(supp):124a.
- [3] Cowley E, vanTol B, **Missan S**, Crack J, Moser S, Babin-Muise D, Linsdell P.
Involvement of KCNQ1 K⁺ channels in cell volume regulation in human mammary epithelial cells. *FASEB J.* 2007 Apr;21(5):A543-c.
- [4] **Missan S**, McDonald TF, Linsdell P.
Tyrosine kinase-dependent modulation of I_{Ks} under isotonic and hyposmotic conditions. *Biophysical J.* 2006 Jan;90(supp):532a.
- [5] **Missan S**, McDonald TF.
CESE: Cell Electrophysiology Simulation Environment. Mechanisms for Maintaining Intracellular Na⁺ and Ca²⁺ Homeostasis in the Mammalian Heart: Implications of Ischaemia and Left Ventricular Dysfunction (IUPS satellite meeting), La Jolla, California, 2005.
- [6] **Missan S**, McDonald TF.
Characterization and regulation of swelling-activated cardiac I_{Ks} . *Exp Clin Cardiol.* 2004 May;9(1):69.

References

Available upon request.