

09/09/06

Jingsong Zhou, Ph.D.

Assistant Professor
Dept. of Molecular Biophysics and Physiology
Section of Cellular Signaling
Rush University, School of Medicine
1750, W. Harrison
Chicago, IL 60612
Phone:312-942-8044
Fax:312-942-8711
jzhou1@rush.edu

Scientific Research area

Molecular Interaction in Ca²⁺ signaling of muscle.

Education

***Ph.D.** (Physiology and Biophysics), Rush University, Chicago, IL. July 1997.

Advisor: Eduardo Rios, Ph.D.

***M.D.** (Medicine), Hunan Medical University, Changsha, China. July 1986.

Postdoctoral Training

Division of Clinical Pharmacology, Dept. of Pharmacology, Vanderbilt University.

Nov. 1997 ~ Nov. 2000.

Advisor: Katherine Murray, M.D.

Position held

***Assistant Professor**, Dept. of Molecular Physiology and Biophysics, Rush University.

Chairman: Robert Eisenberg, Ph.D. 10/00 ~ Present.

***Teaching and Research Assistant**, Dept. of Physiology, Hunan Medical University (China).

Chairwoman: Xiuhong Sun, Ph.D. 8/86 ~ 9/91.

Scientific Societies

Member of Biophysical Society.

Teaching

* Lecture on: Physiology (PHY551). Rush University.

* Lectures on: Physiology. Hunan Medical University.

Administration

- * Seminar coordinator of the Dept. of Molecular Biophysics and Physiology. 2005~
- * Committee member of Women Advisory Group at Rush University. 2005~.

Editorial Work

Referee for Peer-Reviewed Journals:

- * Molecular Pharmacology
- * The Journal of Biological Chemistry

Publications

15. Rios E, Launikonis BS, Royer L, Brum G, **Zhou J.** (2006). The elusive role of store depletion in the control of intracellular calcium release. *J Muscle Res Cell Motil.* 27:337-50.
14. Launikonis, B.S., **Zhou, J.**, Santiago D, Brum G, Rios E. (2006). The Changes in Ca²⁺ Sparks Associated with Measured Modifications of Intra-store Ca²⁺ Concentration in Skeletal Muscle. *J Gen Physiol.* 128:45-54.
13. Launikonis, B.S., **Zhou, J.**, Royer, L., Shannon, T.R., Brum, G., and Rios, E. (2006). Depletion "skraps" and dynamic buffering inside the cellular calcium store. 2006. *Proc Natl Acad Sci U S A.* 103(8):2982-7.
12. **Zhou, J.**, Yi, J., Royer, L., Launikonis, B.S., González, A., García, J., and Ríos, E. (2006). A probable role of dihydropyridine receptors in repression of Ca²⁺ sparks, demonstrated in cultured mammalian muscle. *Am J Physiol Cell Physiol.* 290:C549-C553.
11. Hallaq, H., Yang, Z., Viswanathan, P.C., Fukuda, K., Shen, W., Hu, X., Wang, Z., Brifkani, Z., Wells, S., **Zhou, J.**, Yi, J., and Murray K.T. (2006). Protein kinase A-mediated trafficking of cardiac sodium channels in living cells. *Cardiovascular Research.* accepted.
10. **Zhou, J.**, Brum, G., González, A., Launikonis, B.S., Stern, M.D., and Rios, E. (2005). Concerted vs. Sequential. Two Activation Patterns of Vast Arrays of Intracellular Ca²⁺ Channels in Muscle. *J Gen Physiol.* 126:301-309.
9. Launikonis1, B.S., **Zhou, J.**, Royer, L., Shannon, T.R., Brum, G., and Ríos, E. (2005). Confocal imaging of [Ca²⁺] in cellular organelles by SEER, shifted excitation and emission ratioing of fluorescence. *J Physiol.* 567:523-543.
8. Wang, X., Weisleder, N., Collet, C., **Zhou, J.**, Chu, Y., Hirata, Y., Zhao, X., Pan, Z., Brotto, M., Cheng, H., Ma, J. (2005). Uncontrolled calcium sparks act as a dystrophic signal for mammalian skeletal muscle. *Nature Cell Biology.* 7(5):525-30.
7. **Zhou, J.**, Launikonis, B.S., Rios, E., and Brum, G. (2004). Regulation of Ca²⁺ sparks by Ca²⁺

- and Mg^{2+} in mammalian and amphibian muscle. An RyR isoform-specific role in EC coupling? *J. Gen. Physiol.* 124: 409-428.
6. Rios, E., and **Zhou, J.** (2004). Control of dual isoforms of Ca^{2+} release channels in muscle. (Review) *Biol. Res.* 37:583-591.
 5. Csernoch, L., **Zhou, J.**, Stern M.D., Brum, G., and Rios, E. (2004). The elementary events of Ca^{2+} release elicited by membrane depolarization in mammalian muscle. *J. Physiol.* 557: 43-58.
 4. **Zhou, J.**, Brum, G., Gonzalez, A., Launikonis B.B., Stern M.D., Rios, E. (2003). Ca^{2+} sparks and embers of mammalian muscle. Properties of the source. *J. Gen. Physiol.* 122 (1): 95-114.
 3. **Zhou, J.**, Shin, HG., Yi, J., Shen, W., Williams, CM., and Murray KT. (2002). Phosphorylation and putative ER retention signals are required for protein kinase A-mediated potentiation of cardiac sodium current. *Circ. Res.* 91: 540-546.
 2. **Zhou, J.**, Yi, J., Hu, N., George, A., and Murray, K.T. (2000). Activation of protein kinase A modulates trafficking of the human cardiac sodium channel in *Xenopus* oocytes. *Circ. Res.* 87: 33-38.
 1. **Zhou, J.**, Cribbs, L., Yi, J., Shirokov, R., Perez-Reyes, E., and Rios, E. (1998). Molecular cloning and functional expression of a skeletal muscle dihydropyridine receptor form *Rana catesbeiana*. *J Biol Chem.* 273(39): 25503-25509.

Abstracts

25. **Zhou, J.**, Launikonis, B.B., Royer, L., Shannon, T., Brum, G., and Ríos, E. (2006). Skrapts of Ca^{2+} depletion suggest an alternative source for Ca^{2+} sparks and global Ca^{2+} release in muscle. *Biophys. J.* 50th annual meeting of the Biophysical Society, Salt Lake City, Utah, USA, 2006. 68a.
24. Launikonis, B.B., Royer, L., **Zhou, J.**, Shannon, T., Brum, G., and Ríos, E. (2006). A Ca^{2+} transient inside the SR accompanies low $[Mg^{2+}]$ -induced Ca^{2+} release from SR to Cytosol. *Biophys. J.* 50th annual meeting of the Biophysical Society, Salt Lake City, Utah, USA, 2006. 68a.
23. Brum, G., Launikonis, B.B., Royer, L., Santiago, D., Yi, Y., **Zhou, J.**, and Ríos. (2006) Depletion of SR upon Ca^{2+} release elicited by action potentials or voltage-clamp depolarization. *Biophys. J.* 50th annual meeting of the Biophysical Society, Salt Lake City, Utah, USA, 2006. 68a.
22. Hallaq H., Yang, Z., Viswanathan, P.C., Fukuda, K., Shen, W., Hu, X., Wang, Z., Brifkani, Z., Wells, K.S., **Zhou, J.**, Yi, J., and Murray, K.T. (2006). Quantitation of Protein Kinase A-Mediated Trafficking of Cardiac Na^+ Channels in Living Cells. *Biophys. J.* Submitted.
21. **Zhou, J.**, Launikonis, B.S., Royer, L., Santiago, D.J., Shannon T.R., Pizarro, G., Brum, G.,

- and Rios, E. (2005). Control of calcium release by intra-store Ca^{2+} . *Biophys. J.* 88(1); 13a (66-Symp). (Symposium presentation at 49th Biophysical Society Annual Meeting, in Long Beach, CA)
20. Royer, L., Launikonis, B.S., **Zhou, J.**, Santiago, D.J., Shannon T., Brum, G., and Rios, E. (2005). SEER (Shifted Excitation and Emission Ratioing) of mag-indo fluorescence. Description, calibration in situ and measure of $[\text{Ca}^{2+}]$ and dye concentration inside the SR. *Biophys. J.* 88(1); 89a (442-Pos).
 19. Launikonis, B.S., Brum, G., Rios, E., and **Zhou, J.** (2005). How the calcium-precipitating anions inorganic phosphate and SO_4^{2-} alter intra-SR calcium in skeletal muscle cells. *Biophys. J.* 88(1); 89a (443-Pos).
 18. Weisleder, N., Wang, X., Collet, C., **Zhou, J.**, Chu, Y., Hirata, Y., Zhao, X., Pan, Z., Brotto, M., Cheng, H., and Ma, J. (2005) Stress-induced uncontrolled calcium sparks as dystrophic signals in mammalian skeletal muscle. *Biophys. J.* 88(1); 534a (2622-Plat). (Abstract accepted for an oral presentation at 49th Biophysical Society Annual Meeting, in Long Beach, CA)
 17. **Zhou, J.**, Volpe, P., Bortoloso, E., Nori, A., and Rios, E. (2004). Overexpression of calsequestrin modulates Ca^{2+} sparks in adult mammalian skeletal muscle fibers. *Biophys. J.* 86(1); 579a.
 16. **Zhou, J.**, Brum, G., and Rios, E. (2004). Dynamic imaging of SR $[\text{Ca}^{2+}]$ in single frog skeletal muscle fibers, by excitation- and emission-shifted ratioing of mag-indo 1 fluorescence. *Biophys. J.* 86(1); 343a. (Abstract accepted for an oral presentation at 48th Biophysical Society Annual Meeting, in Baltimore, MD.)
 15. Brum, G., **Zhou, J.**, Launikonis, B. and Rios, E. (2004). Differences in regulation of Ca^{2+} sparks by Mg^{2+} in mammals and amphibians may reflect different RyR isoform arrangement. *Biophys. J.* 86(1); 577a.
 14. **Zhou, J.**, Wang, X., Hirata, Y., Collet, C., Takeshima, H., Pan, Z., and Ma, J. (2004). Frequent and heterogeneous Ca sparks in muscle cells lacking the mg29 gene. *Biophys. J.* 86(1); 20a. (Abstract accepted for an oral presentation at 48th Biophysical Society Annual Meeting, in Baltimore, MD.)
 13. Rios, E., **Zhou, J.**, Brum, G., Pizzarro, G., Gonzalez, A., and Stern M. (2003). Supramolecular structure and local control of intracellular calcium signaling. 5th Ibero-American Congress of Biophysics. Page 19.
 12. **Zhou, J.**, Csernoch, L., Launikonis, B., Brum, G., Stern, MD., Cheng, H., and Rios, E. (2003). Concerted vs. sequential opening of vast arrays of channels in Ca^{2+} sparks of twitch muscle. *Biophys. J.* 84(2); 9a. (Abstract accepted for an oral presentation at 47th Biophysical Society Annual Meeting, in San Antonio, TX.)

11. **Zhou, J.**, Csernoch, L., Yi, J., Launikonis, B., Gonzalez, A., Rios, E., and Garcia J. (2003). Repression of Ca^{2+} sparks by voltage sensors or other T tubule structure in mammalian muscle. *Biophys. J.* 84(2); 386a.
10. Csernoch, L., **Zhou, J.**, Launikonis, B., Gonzalez, A., Stern, MD., Brum, G., and Rios, E. (2003). The effect of SO_4^{2-} , a Ca^{2+} -precipitating buffer, on Ca^{2+} sparks of mammalian and batrachian twitch muscle. *Biophys. J.* 84(2); 386a.
9. **Zhou, J.**, Gonzalez, A., Segura, R., Rios, E., Ferreira, G., Yi, J., and Brum, G., (2002). Modulation by Ca^{2+} and Mg^{2+} of mammalian muscle Ca^{2+} sparks. *Biophys. J.* 82(1):510a. (Abstract accepted for an oral presentation at 46th Biophysical Society Annual Meeting, in San Francisco, CA.)
8. Gonzalez, A., **Zhou, J.**, Kirsch, W., Uttenweiler, D., Fink, R., Rios, E., and Brum, G. (2002). Morphology of Ca^{2+} sparks of mammalian muscle *Biophys. J.* 82(1):510a. (Abstract accepted for an oral presentation at 46th Biophysical Society Annual Meeting, in San Francisco, CA.)
7. **Zhou J.**, Shin HG, Yi J, Shen W, and Murray KY. (2001). Structural requirements in the human cardiac sodium channel for regulated trafficking by protein kinase A. *Circulation.* (Abstract accepted for an oral presentation at Scientific Sessions 2001, in Anaheim, CA., American Heart Association.)
6. **Zhou, J.**, Yi, J., Hu, N., George, A., and Murray, K.T. (2000). Activation of protein kinase A modulates trafficking of the human cardiac Na^{2+} channel: Role of Serines 525 and 528 in the I-II interdomain loop. *Circulation.* 102(18): II-263.
5. **Zhou, J.**, and K.T. Murray. (1999). Modulation of the human cardiac Na^+ channel (hH1) by protein kinase A: multiple potential mechanisms. *Biophys. J.* 76: A343.
4. **Zhou, J.**, Cribbs, L., Yi, J., Shirokov, R., Perez-Reyes, E., and Rios, E. (1997) Cloning of an L-type Ca channel homolog from frog skeletal muscle and functional expression of a chimeric channel. *Biophys. J.* 72: A146.
3. Shirokov, R., Ferreira, G., Yi, J., **Zhou, J.**, Chien, A., Hosey, M., and Rios, E. (1996). Similarity of biophysical properties of Ca currents in I_{C} and $\alpha_{1\text{C}}/\beta_{2\text{A}}$ transfected mammalian cells. *Biophys. J.* 70: A183.
2. **Zhou, J.**, Stavrovsky, I., Ma, J., and Rios, E. (1994). Effects of free Ca, ATP and Mg on the equilibrium behavior of rabbit skeletal muscle Ca release channels in planar bilayer. *Biophys. J.* 66 : A415.
1. Stavrovsky, I., **Zhou, J.**, and Rios, E. (1994). Models of simultaneous interactions of the skeletal muscle Ca release channel with Ca, Mg and ATP. *Biophys. J.* 66 : A20.