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## BIOGRAPHICAL SKETCH

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NAME Jesús García-Martínez	POSITION TITLE Associate Professor		
eRA COMMONS USER NAME garciamartinez			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Medical School, Universidad Autónoma de Coahuila, México	M.D.	1984	
Centro de Investigación y Estudios Avanzados del IPN, México	M. Sc.	1986	Physiology and Biophysics
Centro de Investigación y Estudios Avanzados del IPN, México	Ph. D.	1990	Physiology

### A. Positions and Honors.

#### Professional Appointments

- 10/87-12/88 Research Associate. Dept. Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, TX.
- 1/89-11/90 Postdoctoral Fellow. Dept. Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, TX. Advisor Enrico Stefani
- 12/90-4/91 Postdoctoral Fellow. Dept. Biological Chemistry, University of Maryland School of Medicine, Baltimore, MD. Advisor Martin Schneider
- 4/91-8/94 Postdoctoral Fellow. Dept. Physiology, Colorado State University, Fort Collins, CO. Advisor Kurt Beam
- 9/94-7/96 Research Assistant Professor, Dept. Physiology, Colorado State University, Fort Collins, CO.
- 8/96-7/02 Assistant Professor, Dept. Physiology and Biophysics, College of Medicine, University of Illinois at Chicago, Chicago, IL.
- 8/96-Present Associate Professor, Dept. Physiology and Biophysics, College of Medicine, University of Illinois at Chicago, Chicago, IL.
- 8/06-Present Associate Professor, Dept. Bioengineering, College of Engineering, University of Illinois at Chicago, Chicago, IL.
- 9/04-Present Director of Graduate Studies, Dept. Physiology and Biophysics

#### Honors and Service:

- Muscular Dystrophy Association, postdoctoral fellowship, 1989-1990.
- American Heart Association of Colorado, Inc., postdoctoral fellowship, 1993-1994.
- UIC Summer Research Opportunities Program for Minorities, Advisory Committee member, 1997-present.
- UIC Search Committee for Assistant Dean of the Graduate College, 1998.
- Veterans Administration. Division of Veterans Affairs' Medical Research Service, 1999, (Ad Hoc).
- NSF, Member of Integrative Animal Biology Panel, 1999-2003. Ad Hoc reviewer, 2004.
- UIC MD/PhD Program, Admissions Committee member, 1999-2004.
- Research Corporation, Ad Hoc reviewer, 1999.
- UIC Director / Associate Director of Graduate Studies, Dept. Physiology and Biophysics, 1999-2004.
- UIC Campus Research Board, Ad Hoc reviewer, 2000.
- NSF Neuronal and Glial Mechanisms, Ad Hoc reviewer, 2000.
- NSF Genome-Enabled Environmental Sciences and Engineering, Ad Hoc reviewer, 2001.
- UIC Sigma Xi Graduate Student Research Forum Coordinator, 2001-2003.
- UIC "Philip L. Hawley, Distinguished Faculty Award", Dept. Physiology and Biophysics, 2001.
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UIC MD/PhD Program, Advisory Committee member, 2002-2003.  
UIC Dept. Physiology and Biophysics, Advisory Committee member, 2002-present.  
UIC Signal Transduction Training Program, Advisory Committee member, 2002-present.  
UIC College of Medicine, Committee on Curriculum and Instruction Appraisal member, 2002-2005.  
NSF Multi-user Equipment and Instrumentation Panel, 2004.  
The Israel Science Foundation, Ad Hoc reviewer, 2004.  
NSF Signal Transduction and Cellular Regulation Panel, Ad Hoc reviewer, 2005.  
NIH Cardiac Contractility and Heart Failure Study Section, temporary member, 2006.  
NIH Molecular, Cellular and Developmental Neuroscience Study Section, temporary member, 2006  
NIH Special Emphasis Panel, Neurotransmitters, Receptors, Channels, and Calcium Signaling, 2007.  
NIH Special Emphasis Panel MOSS, Skeletal Muscle and Exercise Physiology Study Section, 2007.  
NIH Special Emphasis Panel MOSS, Skeletal Muscle and Exercise Physiology Study Section, 2008.

**Professional Societies Membership:**

Biophysical Society, 1985-present; Sociedad de Biofísicos Latinoamericanos, 1988-present; American Heart Association, Basic Research Council, 1999-present.

**B. Selected peer-reviewed publications (in chronological order). [Selected from those published from 1990 or later].**

- García, J.**, Avila-Sakar, A.J. & Stefani, E. (1990). Repetitive stimulation increases the activation rate of skeletal muscle  $Ca^{2+}$  currents. *Pflügers Archiv*. 416:210-212.
- García, J.**, Engelhardt, J.I., Appel, S.H. & Stefani, E. (1990). Increased MEPP frequency as an early sign of experimental immune-mediated motor neuron disease. *Annals of Neurology*. **28**:329-334.
- García, J.**, Engelhardt, J.I., Appel, S.H. & Stefani, E. (1990). Increased MEPP frequency as an early sign of experimental immune-mediated motor neuron disease. *Annals of Neurology*. **28**:329-334.
- García, J.**, Gamboa-Aldeco, R. & Stefani, E. (1990). Charge movement and calcium currents in skeletal muscle fibers are enhanced by  $GTP\gamma S$ . *Pflügers Archiv*. **417**:114-116.
- García, J.**, Fill, M., Toro, L. & Stefani, E. (1990). Functional studies of  $Ca^{2+}$  channels from plasmalemma and sarcoplasmic reticulum membranes in muscle cells. *Seminars in Cell Biology*. **1**:255-264.
- Appel, S.H. Engelhardt, J.I., **García, J.** & Stefani, E. (1991). Immunoglobulins from animal models of motor neuron disease and from human Amyotrophic Lateral Sclerosis patients passively transfer physiological abnormalities to the neuromuscular junction. *Proceedings of the National Academy of Sciences, USA*. **88**:647-651.
- Engelhardt, J.I., Appel, S.H., Jakab, K., **García, J.** & Stefani, E. (1991). Immune-mediated models of motoneuron destruction in the guinea pig. In: Amyotrophic Lateral Sclerosis and other Motor Neuron Diseases. L.P. Rowland, ed., Raven Press. *Advances in Neurology*. **56**:369-379.
- Appel, S.H., Engelhardt, J.I., **García, J.** & Stefani, E. (1991). Autoimmunity and ALS: a comparison of animal models of immune-mediated motoneuron destruction and human ALS. In: Amyotrophic Lateral Sclerosis and other Motor Neuron Diseases. L.P. Rowland, ed., Raven Press. *Advances in Neurology*. **56**:405-412.
- García, J.**, Pizarro, G., Ríos, E. & Stefani, E. (1991). Effect of the calcium buffer EGTA on the delayed charge movement of skeletal muscle. *Journal of General Physiology*. **97**:885-896.
- García, J.**, Avila-Sakar, A.J. & Stefani, E. (1991). Differential effects of ryanodine and tetracaine on charge movement and calcium transients in frog skeletal muscle. *Journal of Physiology (London)*. **440**:403-417.
- García, J.**, McKinley, K., Appel, S.H. & Stefani, E. (1992).  $Ca^{2+}$  current and charge movement in adult single human skeletal muscle fibres. *Journal of Physiology (London)*. **454**:183-196.
- García, J.** & Schneider, M. F. (1993). Calcium transients and calcium release in rat fast-twitch skeletal muscle fibres. *Journal of Physiology (London)*. **463**:709-728.
- García, J.** & Beam, K. G. (1994). Measurement of calcium transients and slow calcium current in myotubes. *Journal of General Physiology*. **103**:107-123.
- García, J.**, Tanabe, T. & Beam, K.G. (1994). Relationship of calcium transients to calcium currents and charge movement in myotubes expressing skeletal and cardiac DHP receptors. *Journal of General Physiology*. **103**:125-147.
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- García, J.** & Beam, K. G. (1994). Physiological and molecular insights into excitation-contraction coupling in cardiac and skeletal muscle. In: *Ion channels in the cardiovascular system: Function and Dysfunction*. P. M. Spooner, et al., eds., Futura Publishing Co., New York, 355-368.
- García, J.** & Beam, K. G. (1994). Calcium transients associated with the T type calcium current in myotubes. *Journal of General Physiology*. **104**:1113-1128.
- García, J.** & Schneider, M. F. (1995). Suppression of calcium release by calcium or procaine in voltage clamped rat skeletal muscle fibres. *Journal of Physiology (London)*. **485.2**:437-445.
- Shirokova, N., **García, J.**, Pizarro, G. & Ríos, E. (1996).  $Ca^{2+}$  release from the sarcoplasmic reticulum compared in amphibian and mammalian skeletal muscle. *Journal of General Physiology*. **107**:1-18.
- García, J.**, Nakai, J., Imoto, K. & Beam, K.G. (1997). Role of S4 segments and the leucine heptad motif in the activation of an L-type calcium channel. *Biophysical Journal*. **72**:2515-2523.
- Shirokova, N., **García, J.** & Ríos, E. (1998). Local calcium release in mammalian skeletal muscle. *Journal of Physiology (London)*. **512.2**:377-384.
- Shirokova, N., Shirokov, R., Rossi, D., González, A., Kirsch, W.G., **García, J.**, Sorrentino, V. & Ríos, E. (1999). Spatially segregated control of  $Ca^{2+}$  release in developing skeletal muscle of mice. *Journal of Physiology (London)*. **521.2**:483-495.
- Alden, K.J. & **García, J.** (2001). Differential effect of gabapentin on neuronal and muscle calcium currents. *Journal of Pharmacology and Experimental Therapeutics*. **297**:727-735.
- Simeoni, I., Rossi, D., Zhu, X., **García, J.**, Valdivia, H.H., & Sorrentino, V. (2001). Imperatoxin A (IpTx<sub>a</sub>) from *Pandinus imperator* stimulates [<sup>3</sup>H]ryanodine binding to RyR3 channels. *FEBS Letters*. **508**:5-10.
- Alden, K.J., Goldspink, P.H., Ruch, S., Buttrick, P.M., & **García, J.** (2002). Enhancement of L-type  $Ca^{2+}$  current from neonatal mouse ventricular myocytes by constitutively active PKC- $\beta$ II. *American Journal of Physiology Cell Physiology*. **282**:C768-C774.
- Nabhani, T., Zhu, X., Simeoni, I., Sorrentino, V., Valdivia, H.H. & **García, J.** (2002). Imperatoxin A enhances  $Ca^{2+}$  release in developing skeletal muscle containing ryanodine receptor type 3. *Biophysical Journal*. **82**:1319-1328.
- Motlagh, D., Alden, K.J., Russell, B., & **García, J.** (2002). Sodium current modulation by a tubulin/GTP coupled process in neonatal cardiac myocytes. *Journal of Physiology (London)*. **540.1**:93-103.
- Alden, K.J. & **García, J.** (2002). Dissociation of charge movement from calcium release and calcium current in skeletal myotubes by gabapentin. *American Journal of Physiology Cell Physiology*. **283**:C941-C949.
- García, K. D., Shah, T. & **García, J.** (2004). Immunolocalization of Type 2 Inositol 1,4,5-Trisphosphate Receptors in Cardiac Myocytes from Newborn Mice. *American Journal of Physiology Cell Physiology*. **287**:C1048-C1057.
- Nabhani, T., Shah, T. & **García, J.** (2005). Skeletal Muscle Cells Express Different Isoforms of the Calcium Channel  $\alpha 2/\delta$  Subunit. *Cell Biochemistry and Biophysics*. **42**:13-20.
- Zhou, J., Yi, J., Royer, L., Launikonis, B., Gonzalez, A., **García, J.** & Ríos, E. (2006). A probable role of dhydropyridine receptors in repression of  $Ca^{2+}$  sparks, demonstrated in cultured mammalian muscle. *American Journal of Physiology Cell Physiology*. **290**:C539-C553.
- Goldspink, P., Ruch, S., Los, T., Buttrick, P. & **García, J.** (2008). Maladaptation of Calcium Homeostasis in Aging Cardiac Myocytes. *Pflügers Archiv – European Journal of Physiology*. **456**: 479-487. DOI: 10.1007/s00424-007- 0420-2.
- García, K., Nabhani, T. & **García, J.** (2008). The Calcium Channel  $\alpha 2/\delta 1$  Subunit is Involved in Extracellular Signaling. *Journal of Physiology (London)*. **586.3**:727-738. DOI: 10.1113/jphysiol.2007.147959.
- Thompson, W.R., Majid, A.S., Czymmek, K.J., Modla, S., **García, J.**, Duncan, R.L. & Farach-Carson, M.C. (2009) The auxiliary  $\alpha 2\delta 1$  voltage sensitive calcium channel subunit associates with the T-Type, Cav3.2 subunit in osteocytes: a link to the extracellular environment. *Journal of Bone and Mineral Research* 24 (Suppl 1). <http://www.asbmr.org/Meetings/AnnualMeeting/AbstractDetail.aspx?aid=f910b9f9-e5da-4e54-8a8a-7abc268e8628>
- Bortoloso, E., Carpi, A., **García, J.**, Pedrini, R., Zucchi, R. & Volpe, P. (2009). Presence, sub-cellular localization, and function of Homer1a in cardiac myocytes. In preparation.
- Grajales, L., **García, J.**, Banach, K. & Geenen, D. (2009). Delayed enrichment of mesenchymal cells promotes cardiac lineage and calcium transient development. *Journal of Molecular and Cellular Cardiology*. In revision.
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**García, J.** (2009). Interaction of the calcium channel  $\alpha_2/\delta_1$  subunit with an ATP synthase in the plasma membrane of muscle cells. Submitted.

### **C. Research Projects Ongoing or Completed During the Last 3 years**

-Research Grant García-Martínez, (PI) 7/1/09 - 6/30/12  
Muscular Dystrophy Association  
Function of the Alpha2/Delta1 Subunit in Dystrophic Skeletal Muscle

The goal of this project is to determine the role of the alpha2/delta1 subunit in the activation and migration of satellite cells in muscle from the mdx mouse model of Duchenne muscular dystrophy.

-Research Grant García-Martínez, (PI) 7/1/06 - 6/30/09  
Muscular Dystrophy Association  
Function of the Alpha2/Delta1 Subunit in Skeletal Muscle

The major goals of this project are to determine the role of the alpha2/delta1 subunit in excitation-contraction coupling and its possible involvement in cell adhesion and migration.

-Training in Cellular Signaling in the Cardiovascular System (R.J. Solaro, PI) Period: 2004-2009  
Agency: NIH Type: T32 HL 07692

-Program in Signal Transduction and Cellular Endocrinology (S.J. Ackerman, PI) Period: 2007-2012  
Agency: NIH Type: T32 DK03379

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