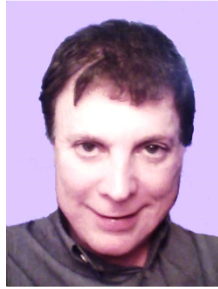


CURRICULUM VITAE

Name:

Joseph Montes, Ph.D.



Address: 723 E. Laurel St., Philipsburg, PA 16866

Phone Number: 410-790-5658

Summary: Multi-disciplinary scientist with experience in scientific/biomedical research, in teaching at the college level, and in industrial product development. Almost finished a degree in Economics. Has experience in managing research projects as Research Assistant Professor (University of Maryland School of Medicine) and as Principal Investigator (Materials Modification, Inc.). Most recently, was Principal Investigator on two projects: a Defense Advanced Research Projects Agency (DARPA)-sponsored project to use magnetic nanoparticles as hemostatic agents, and an Army Research Laboratory (ARL) project to develop a highly effective topical hemostatic agent and treatment.

Education:

- 1969-1972 Major in Economics. One semester short of graduation, changed major. University of New Orleans, New Orleans, LA
- 1975 B. A. in Biological Sciences. The University of New Orleans, New Orleans, LA
- 1978 M. S. in Applied Physics. The University of New Orleans, New Orleans, LA. Thesis title: "The Effects of Mercuric Compounds on Algae—A Bioassay Approach." Advisor: Dr. Dempsey L. Thomas.
- 1983 Ph.D. in Biophysics (Molecular Biology). The Pennsylvania State University, University Park, PA. Dissertation title: "The Effects of UV Radiation on Plaque Formation of Herpes simplex Type I on C3H/10T $\frac{1}{2}$ Monolayers." Advisor: Dr. William D. Taylor.
- 1982-1984 Postdoctoral Training in Toxicology (NIH sponsored). Medical College of Virginia, Richmond, VA. Advisor: Dr. Richard A. Carchman.
- 1987-1991 Postdoctoral Training in Membrane Biology (as Research Assistant Professor). University of Maryland School of Medicine, Baltimore, MD. Advisor: Dr. Raymond A. Sjodin, Dept. Chair, Department of Biophysics.
- 1991-1993 Postdoctoral Training in Pharmacology and Membrane Ion Channels (as Research Assistant Professor). University of Maryland School of Medicine, Baltimore, MD. Advisor: Dr. Edson Albuquerque, Dept. Chair, Department of Pharmacology and Experimental Therapeutics.

Faculty and Research Positions:

- 2005- 2011 Director, Biomedical Research, Materials Modification, Inc., Fairfax, VA. Assumed role as Principal Investigator on two DOD-funded hemostasis projects. Provided advice on biomedical and biophysical topics to others in his company. Invented various devices for national defense and medical applications.
- 1993-2006 Lecturer (Full-time contractual). Morgan State University, Baltimore, MD. Department of Biology.
- 2004-2005 Research Scientist, Materials Modification Inc., Fairfax VA. Provided support for the toxicological, physical, and chemical aspects of research in the development of novel superparamagnetic nanoparticles for use in magnetically controlled hemostasis.
- 2001-2003 Adjunct Professor (Part-time contractual). Catonsville Community College, Baltimore, MD. Department of Mathematics and Sciences. Taught Basic Mathematics, Earth Sciences (with lab), and Astronomy courses (with lab); operated Catonsville Community College Planetarium.
- 1997-2000 Adjunct Professor. Summer Programs at Johns Hopkins University, Baltimore, MD. Taught Biomolecules course for college credit for three consecutive summers to gifted senior-high-school students culled from all over the world.
- 1995-1999 Chemistry Instructor. Morgan State University, Baltimore, MD, Department of Electrical Engineering.
- 1995-1996 Adjunct Assistant Professor. Towson State University, Towson, MD. Department of Physics. Taught introductory physics courses to physics majors and non-majors. Also taught history of science course.
- 1993-2004 Adjunct Professor (Part-time contractual). Essex Community College, Essex, MD. Department of Mathematics and Sciences. Taught Introduction to Astronomy (with lab), second-semester Chemistry, Engineering Statics, Biology Lab, and Physical Science (with lab) courses.
- 1991-1993 Research Assistant Professor. University of Maryland School of Medicine, Baltimore, MD, Department of Pharmacology and Experimental Therapeutics. Participated in the scientific interpretation of the results of patch-clamp studies conducted on the pharmacology of neurotoxins, including lead and chemical warfare agents. Co-authored a monograph on the toxicity of a number of neurotoxic substances, primarily chemical warfare agents and pesticides, for the United States Army Research Institute for Chemical Defense (see Publications). Published, as principal author, two review articles concerning acetylcholine receptors in the nervous system.
- 1988-1991 Research Assistant Professor. University of Maryland School of Medicine, Baltimore, MD, Department of Biophysics. Continued development of stable isotope approach for the measurement of ionic fluxes, extending the technique to mammalian cells in culture. Assisted in training graduate staff in research techniques, and provided theoretical support for novel concepts in the biophysics of membrane electrofusion.

- 1986-1988 Research Associate. University of Maryland School of Medicine, Baltimore, MD, Department of Biophysics. Researched cation transmembrane fluxes in muscle fibers, using radioactive tracers and special fiber-optical techniques; devised a method for measuring transmembrane ion fluxes using stable isotopes rather than radioisotopes (see **Publications**). Assisted in teaching conference sessions for Medical Biophysics course for medical students.
- 1985-1986 Temporary Assistant Professor. Towson State University, Towson, MD, Department of Physics. Held temporary faculty appointment as Assistant Professor of Physics; taught General Physics to both majors and non-majors, as well as sessions of a History of Science course serving college students as a second level writing course.

Major Consultant Activities:

- 2004-2005 Technical Consultant. Assisted Dr. Frank Weichold in his laboratory at Morgan State University, Baltimore, MD, in the development of an ELISA technique useful in assessing the impact of biofilms on health.
- 1995-1996 Reviewer and Scientific Writer. Saunders Publishing Corp., Division of Harcourt, Brace and World, Philadelphia, PA. Reviewed test-bank questions provided with college textbooks; created questions for interactive CD-ROM tutorials.
- 1985-1986 Technical and Scientific Reviewer and Writer. Science Applications International, Inc. (SAIC), Joppatowne, MD. Served as technical and scientific reviewer of physiological and pharmacological research reports submitted to the Department of Defense; also prepared abstracts and summaries of research reports and new grant proposals.

Patents:

Patents Issued

"In Situ formation of an Artificial Blockage to Control Bleeding by Polymer Expansion with Hydrogen Peroxide", Patent Number 8,828,358, U.S. Patent and Trademark Office, issued 9/9/2014.

"Aluminum-zirconium Compound-based Treatment for Herpes Simplex Virus Lesions." Patent Number, 10/382,173, U.S. Patent and Trademark Office, issued 2/2006.

Publications:

Hemostatic Treatment of Open Wounds. 2009. J.G. Montes. ARL (Army Research Laboratory) Contract No. W911QX-07-C-0093, Final Report.

Magnetic Hemostasis Agents to Arrest Hemorrhage. 2006. J.G. Montes. DARPA (Defense Advanced Research Projects Agency) Contract No. W31P4Q-04-CR036, Final Report.

Nicotinic Responses in Acutely Dissociated Rat Hippocampal Neurons and the Selective Blockade of Fast-Desensitizing Nicotinic Currents by Lead. 1995. K. Ishihara, M. Alkondon, M., J.G. Montes, and E. X. Albuquerque. *J. Pharm. Exp. Ther.* **273**: 1471-1482.

Ontogenically-Related Properties of N-Methyl-D-Aspartate Receptors in Rat Hippocampal Neurons and the Age-Specific Sensitivity of Developing Neurons to Lead. 1995. K. Ishihara, M. Alkondon, J.G. Montes, and E.X. Albuquerque. *J. Pharm. Exp. Ther.* **273** : 1459-1470.

Determination of Electric Field Threshold for Electrofusion of Erythrocyte Ghosts: Comparison of "Pulse-First" and "Contact-First" Protocols. 1992. Y. Wu, J.G. Montes, and R.A. Sjodin. *Biophys. J.* **61**:810-815.

Cell Density Dependence of UV Light Enhanced Reactivation of Herpes simplex Type I and the Large Plaque Effect in C3H/10T $\frac{1}{2}$ Mouse Fibroblasts. 1992. J.G. Montes and W.D. Taylor. *Photochem. Photobiol.* **55**:213-219.

Direct Inhibitory Action of EGTA-Ca Complex on Reverse-Mode Na/Ca Exchange in Myxicola Giant Axons. 1990. R.A. Sjodin, A.A. Mahmoud, and J. G. Montes. *J. Membr. Biol.* **114**:225-230.

Regulation of Potassium and Magnesium Effluxes by External Magnesium in Barnacle Muscle Fibres. 1990. J.G. Montes, R.A. Sjodin, Y. Wu, J-S Chen, A.L. Yergey, and N.E. Vieira. *Magnesium Research* **34**:239-248.

Anomalous Influence of Reduced Internal ATP Levels on Sodium Efflux in Myxicola Giant Axons. 1989. R.A. Sjodin, O.E. Ortiz, and J. G. Montes. *J. Membr. Biology* **108**:61-71.

Simultaneous Bidirectional Magnesium Ion Flux Measurements in Single Barnacle Muscle Cells by Mass Spectrometry. 1989. J.G. Montes, R.A.Sjodin, A.L. Yergey, and N.E. Vieira. *Biophys. J.* **56**:437-446.

The Effects of Ultraviolet Light on Host Cell Reactivation and Plaque Size of Herpes simplex Virus Type I in C3H/10T1/2 Mouse Cells. 1986. J.G. Montes and W.D. Taylor. *Photochem. Photobiol.* **43**:35-40.

Further Evidence That Ultraviolet Light Enhanced Reactivation of Simian Virus 40 in Monkey Kidney Cells Is Not Accompanied by Mutagenesis. 1982. W.D. Taylor, L.E. Bockstahler, J. Montes, M.A. Babich, and C.D. Lytle. *Mutation Research*, **105**:291-298.

Spectrophotometrically Assayed Inhibitory Effects of Mercuric Compounds on Anabaena flos-aquae and Anacystis nidulans (Cyanophyceae). 1978. D.L. Thomas and J.G. Montes. *J. Phycol.* **14**:494-499.

Book Chapters:

Electrophysiological Methods for the Study of Neuronal Nicotinic Receptor Ion Channels. 1994. J.G. Montes, M. Alkondon, E.F.R. Pereira, N. Castro, and E.X. Albuquerque, *In* "Ion Channels in Excitable Membranes" (Narahashi, T. ed.), *Methods in Neurosci.* **19**, pp. 121-146, Academic Press, San Diego, CA.

Nicotinic Acetylcholine Receptor of the Mammalian Central Nervous System. 1994. J.G. Montes, M. Alkondon, E.F.R. Pereira, and E.X. Albuquerque, *In* "Handbook of Membrane Channels" (Perrachia, C., ed.), pp. 269-285, Academic Press, San Diego, CA.

Monographs and Books:

“Win-Win Capitalism”. J. Montes. Available through Amazon Books and Kindle. 2015.

“The Direct Actions of Organophosphates, Carbamates, and Oximes on Nicotinic Acetylcholine Receptors”. E.X. Albuquerque, K. Swanson, J.G. Montes, and Y. Aracava. Submitted to the United States Army Medical Research Institute of Chemical Defense. 1994.

Abstracts:

Nicotinic Currents in Neurons Acutely Dissociated from Rat Hippocampus and Inhibition of the Currents by Pb^{2+} . K. Ishihara, M. Alkondon, J.G. Montes, and E.X. Albuquerque. *Soc. Neurosci. Abstracts*. 1994.

Effect of Magnesium on Open-Channel Blockade of NMDA Receptors by 9-Aminoacridine. 1994. M. Nelson, J.G. Montes, and E.X. Albuquerque. *Soc. Neurosci. Abstracts*.

Nicotinic Currents in Neurons Acutely Dissociated from Rat Hippocampus and Inhibition of the Currents by Pb^{2+} . 1994. K. Ishihara, M. Alkondon, J.G. Montes, and E.X. Albuquerque. *Soc. Neurosci. Abstracts*.

An Energetic Description of Electrofusion Based on Boltzmann Model. 1992. Y. Wu, J.G. Montes, and R.A. Sjodin. *Biophys. J.* **61**:497a.

Energy Storage and Membrane Electrofusion in Rabbit Erythrocyte Ghosts. 1991. J.G. Montes, Y. Wu, and R.A. Sjodin. *Biophys. J.* **59**:130a.

The Additivity of Pulse Energy and the Role of the Electric Field Strength in the Electrofusion of Rabbit Erythrocyte Ghosts. 1991. J.G. Montes, Y. Wu, and R.A. Sjodin. *Biophys. J.* **59**:130a.

Magnesium Fluxes in Barnacle Muscle Fibers Measured by Mass Spectrometry Using Stable Isotopes of Mg. 1989. R.A. Sjodin, J.G. Montes, A.L. Yergey, and N.E. Vieira. *Proceedings of the International Union of Physiological Sciences* **17**:478.

Simultaneous Bidirectional Magnesium Ion Flux Measurements in Single Barnacle Muscle Cells by Mass Spectrometry. 1989. J. G. Montes, R. A. Sjodin, A. L. Yergey and N. E. Vieira. *Biophys. J.* **55**:164a.

Evidence for Potassium-Activated Magnesium Extrusion in Barnacle Muscle Fibers. 1988. J.G. Montes, R.A. Sjodin, H. Gonzalez-Serratos and H. Rasgado-Flores. *Biophys. J.* **53**:344a.

Evidence for "Reverse Mode" Na/Mg Exchange in Dialyzed Giant Squid Axons. 1988. H. Gonzalez-Serratos, H. Rasgado-Flores, R.A. Sjodin and J.G. Montes. *Biophys. J.* **53**:342a.

The Effects of Mercuric Compounds on Blue-Green and Green Algae. 1975. D.L. Thomas and J.G. Montes. *Annual Meeting of the Southern Section of the American Society of Plant Physiologists*, New Orleans, Louisiana, February 3, 1975.

References. Furnished upon request.