HEBERTO SUAREZ-ROCA, *M.D., PH.D.*

Curriculum Vitae

Personal Information:

Birthday	November 3, 1956
Marital Status	Married

Contact Information:

Mobile +58 (416) 660-6506.
Email hsuarezroca@yahoo.com
Website https://www.linkedin.com/in/hebertosuarezroca
Home Address Calle 57, Nº 4b-35, Sector Zapara 2, Maracaibo 4002, Venezuela

EDUCATION - ACADEMIC TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Zulia, Maracaibo, Venezuela.	M.B.B.S. (Bachelor of Medicine, Bachelor of Surgery)	1974-1983	Medicine and Surgery
University of North Carolina at Chapel Hill, USA	Ph.D. (Doctor of Philosophy)	1987-1991	Pharmacology
University of Zulia, Maracaibo, Venezuela.	D.M.S. (Doctor of Medical Sciences)	2000-2001	Medicine

DOCTORAL DISSERTATIONS

- **PhD dissertation**
  - **Institution:** University of North Carolina at Chapel Hill, USA. 1991
  - **Dissertation title:** Multiphasic effect of morphine on the release of substance P from the rat trigeminal nucleus.
  - **PhD Advisor:** Dr. William Maixner
- **DMS dissertation**
  - **Institution:** University of Zulia, Maracaibo, Venezuela, 2001

- **Dissertation title:** Heterologous uptake and presynaptic storage of monoamines induced by selective inhibition of its reuptake by antidepressants (*Recaptación y almacenaje presináptico heterólogo de monoaminas inducidos por la inhibición selectiva de su recaptación por antidepresivos*).
- **PhD Advisor:** Dr. Antonio Urdaneta

RECENT CONTINUING EDUCATION CERTIFICATIONS

- Data Management for Clinical Research
  - Coursera Statement of Accomplishment
  - Vanderbilt University, TN, USA
  - December 2014
- Statistical Reasoning for Public Health 1: Estimation, Inference, & Interpretation
  - Coursera Statement of Accomplishment
  - Johns Hopkins University, MD, USA
  - December 2014
- Data Analysis and Statistical Inference:
  - Coursera Verified Certificate, License D6AMBCKMB2
  - Duke University, NC, USA
  - November 2014
- Statistical Analysis of fMRI Data
  - Coursera Statement of Accomplishment
  - John Hopkins University, MD, USA
  - September 2014
- Preventing Chronic Pain: A Human Systems Approach
  - Coursera Statement of Accomplishment
  - University of Minnesota, MN, USA
  - August 2014
- Introduction to Neuroeconomics: how the brain makes decisions
  - Coursera Statement of Accomplishment
  - Higher School of Economics, National Research University, Moscow
  - September 2014

ACADEMIC OR PROFESSIONAL APPOINTMENTS

2012 – Present	Freelance Data Analyst, Research Consultant, and Lecturer in Neuroscience, Pharmacology and Research Methodology.
2012 – Present	Biofeedback Therapist. Community Service of the Institute of Clinical Investigation at University of Zulia.
2011 – Present	Professor Emeritus in Pharmacology and Neuroscience at University of Zulia, Maracaibo, Venezuela.
2001 – 2011	Full Professor. Head of the Section of Neuropharmacology and Neuroscience, Institute of Clinical Investigation, School of Medicine, University of Zulia, Maracaibo, Venezuela.
2002 – 2003	Visiting Professor (Sabbatical), Center for Neurosensory Disorders, University of North Carolina at Chapel Hill, USA.
1996 – 2001	Associate Professor. Head of the Section of Pharmacology, Institute of Clinical Investigation, University of Zulia, School of Medicine, Maracaibo, Venezuela.
1994 – 1996	Assistant Professor, Section of Neurochemistry, Institute of Clinical Investigation, University of Zulia, School of Medicine, Maracaibo, Venezuela.
1993 – 2003	Adjunct Professor, Center for Neurosensory Disorders, University of North Carolina at Chapel Hill, USA.
1991 – 1994	Research Associate Professor, Dept. of Neurobiology, Institute of Biomedical Investigations, Fundacite-Zulia, Maracaibo, Venezuela.

1986 – 1987 Research Fellow, University of North Carolina at Chapel Hill, NC, USA.
1984 – 1985 General Medical Practitioner at San Luís Outpatient Clinic of Venezuela Health Department, Maracaibo, Venezuela.

TEACHING EXPERIENCE

2009 & 2012 Coordinator and Instructor of a Neuroimmunology Course for graduate students of the Master Program in Biology and Immunology at the School of Experimental Sciences. University of Zulia. . Maracaibo, Venezuela.
1993 – 2011 Lecturer for "Pharmacokinetics, Pharmacodynamics and Pharmacology of the Central Nervous System" for medical students at the Department of Pharmacology, School of Medicine. University of Zulia. Maracaibo, Venezuela.
1998 & 2006 Lecturer for "Neurochemistry" for students of the Graduate Master Program in Biology and Immunology at the Experimental School of Science. University of Zulia. . Maracaibo, Venezuela.
2000 – 2001 Lecturer for "Pain Therapy" at the Department of Anesthesiology, School of Medicine, University of Zulia. Maracaibo, Venezuela.
1996 – 2001 Lecturer for "Psychopharmacology" at the Department of Psychiatry, School of Medicine, University of Zulia. . Maracaibo, Venezuela.
1994 – 1995 Lecturer for "Toxicokinetics" in the Training Program in Clinical Toxicology. University Hospital of Maracaibo. . Maracaibo, Venezuela.

THESIS ADVISING EXPERIENCE

- Advisor of 21 theses (7 undergraduate and 14 graduates).
- Shown a **selection** of graduate thesis by year of award:

2013 "Effect of cyclooxygenase inhibitors on neuroinflammation and stress-induced hyperalgesia un rats". Coram Guevara**.** Master Thesis in Immunology**.**
2012 "Efficacy of magnesium chloride in the treatment of compressive radicular neuropathy". Yamilet Perez. Doctoral Thesis in Medicine.
2010 "GABAergic-opioidergica interaction in the development of tolerance to morphine induced by repeated forced swim stress. Doctoral Thesis in Medicine.
2009 "Role of microglia, IL-1β, and corticosterone in the development of hyperalgesia induced by repeated forced swim stress". Master Thesis in Immunology**.**
2007 "Role of microglia and serotonin in the hiperalgesia induced by repeated stress". Shirley Medina. Master Thesis in Immunology.
2006 "Influence of swimming stress on nociception, serum levels of tumoral necrosis factor alpha (TNF-α) and corticosterone in rats". Raquel Ávila. Master Thesis in Immunology.
2005 "Tissue IL-1β and microglia activation in rats with hyperalgesia induced by repeated stress". Yolanda Crozzoli. Master Thesis in Immunology.
2004 "Muscular alodynia and hyperalgesia induced by stress: preventive effect of minalcipram". Luis Quintero. Master Thesis in Neuroscience. University Pablo de Olavide, Seville, Spain.

COMMITTEE/ADMINISTRATIVE EXPERIENCE

2007 – Present Review of research proposals and project progress reports at the Council for Scientific and Humanistic Development at the University of Zulia (CONDES-LUZ). Maracaibo, Venezuela.
2010 – 2011 Review of credentials and selection of candidates for the XV National Prize of Science "Lorenzo Mendoza Fleury" 2011, awarded by Empresas Polar Foundation, Caracas, Venezuela.
2007 – 2009 Review of research projects at the Technical Committee for Health Sciences Research of the National Foundation for Science and Technology (FONACIT). Caracas, Venezuela.
2004 – 2010 Review and approval of Faculty-related administrative matters as member of the Technical Council of the Institute of Clinical Research. University of Zulia. Maracaibo.

2004 – 2006	Evaluation of research credentials for national certification of researchers at the Program for Promotion of Researchers (PPI), CONICIT, Caracas, Venezuela.
2001 – 2003	Performance Assessment of the National Core Laboratories at the National Council for Science and Technology (CONICIT). Caracas, Venezuela.
1998 – 1999	Review of candidates qualifications for Scholarships in Biotechnology at the Foundation for the Development of The University of Zulia (Fundadesarrollo), Maracaibo, Venezuela.

EXPERIENCE AS JOURNAL ARTICLE REVIEWER

Ad-Hoc reviewer for the following journals (shown last 5 years):

2014	Physiology and Behavior, Stress.
2013	Brain Behavior and Immunity, SOJ Psychology, Brain Research, Physiology and Behavior (2), Cellular and Molecular Neurobiology, Psychoneuroimmunology, Pharmacology Reports, Journal of Behavioral Brain Science, Psychoneuroendocrinology
2010	Physiology and Behavior
2009	Psychoneuroendocrinology, Neurological Sciences
2008	Molecules, The Tohoku Journal of Experimental Medicine, Psychoneuroendocrinology

Reviewer for the following journal:

2006-present	Investigación Clínica

PEER-REVIEWED PUBLICATIONS:

- **Bibliometric summary:**
- **Query date:** 2014-08-09. Based Google Scholar (Publish or Perish©).
- **Note:** It does not include citation information for articles published before 1987, as well as book chapters and some local journals. Also, it does not include some articles published after 1987 as "Heberto Suarez".

Papers: 43	**h-index: 17**	Hirsch a=2.94, **m=0.63**
Citations: 850	g-index: 28	Contemporary ac=2.35
Years: 27	e-index: 20.17	
Cites/year: 31.48	hc-index: 11	6 paper(s) with 2 author(s)
Cites/paper: 19.77/12.0/0 (mean/median/mode)	hI-index: 4.25	6 paper(s) with 3 author(s)
Cites/author: 238.42	hI,norm: 9	15 paper(s) with 4 author(s)
Cites/author/year: 8.83	hI,annual: 0.33	16 paper(s) with 5 author(s)
Papers/author: 11.95	hm-index: 7.73	
Authors/paper: 3.95/4.0/5 (mean/median/mode)	AW-index: 8.43 AWCR: 71.12	

52. Spinal PGE2 is involved in swim stress-induced thermal hyperalgesia. Guevara C, Fernandez AC, Cardenas R, Suarez-Roca H. Neurosci.Lett. 2015 (in press)
51. Central immune overactivation in the presence of reduced plasma corticosterone contributes to swim stress-induced hiperalgesia. Suarez-Roca H, Quintero L, Avila R, Medina S, De Freitas M, Cárdenas R. Brain Res. Bull. 100C:61-69, 2013.50.
50. Ramírez MM, Balza K, Acurero G, Ortega1 J, Rosales C, Rossi R, Santiago A, Basso S, Migliore de Angel B, Suárez Roca H, Charris J, Enriz RD, Angel Guío J. Síntesis de noveles compuestos: derivados de la quinolina, la lilolidina y el adamantano con posible actividad dopaminergica central. Ciencia 20 (Número Especial), 32 - 42, 2012.
49. Guío Angel J, Santiago A, Rossi R, de Angel B, Barolo S, Andujar S, Hernández V, Rosales C, Charris J, Suárez-Roca H, Israel A, Ramírez M, Ortega J, Herrera Cano N, Enriz R. Synthesis and preliminary pharmacological evaluation of methoxilated indoles with possible dopaminergic central action. Lat Am J Pharm. 30 (10): 1934-42, 2011.

48. Quintero L, Cardenas R, Suarez-Roca H. Stress-induced hyperalgesia is associated with a reduced and delayed GABA inhibitory control that enhances post-synaptic NMDA receptor activation in the spinal cord. Pain. Aug;152(8):1909-22, 2011.
47. Piñerua-Shuhaibar L, Villalobos N, Delgado N, Rubio MA, Suarez-Roca H. Enhanced central thermal nociception in mildly depressed nonpatients and transiently sad healthy subjects. J Pain. Mar; 12(3):360-369, 2011
46. Migliore de Angel B, Herrera Cano N, Barolo S, Andujar S, Israel A, Garrido MR, Charris JE, Rosales C, Hernández V, Ramírez MM, Ortega J, Suárez-Roca H, Enriz RD, Rossi R, Santiago A, Angel Guío JE. Síntesis y evaluación farmacológica preliminar de análogos de índoles fusionados con posible actividad dopaminergica central. Revista de la Facultad de Farmacia (UCV) 73(1):15-23, 2010.
45. Mora M, Quintero L, Cardenas R, Suárez-Roca H, Zavala M, Montiel N. Infecciones por HSV-2 y su relación con anticuerpos antiencéfalo de rata en suero de pacientes con autismo. Investigación Clínica 50(3): 315-326, 2009.
44. Urdaneta A, Siso A, Urdaneta B, Cardenas R, Quintero L, Avila R, Suarez-Roca H. Lack of correlation between the central anti-nociceptive and peripheral anti-inflammatory effects of selective COX-2 inhibitor parecoxib. Brain Research Bulletin. 80:65-61, 2009.
43. Suarez-Roca H, Leal L, Silva JA, Piñerua-Shuhaibar L, Quintero L. Reduced GABA neurotransmission underlies hyperalgesia induced by repeated forced swimming stress. Behavioral Brain Research189(1):159-69, 2008.
42. Andujar SA, de Angel BM, Charris JE, Israel A, Suárez-Roca H, López SE, Garrido MR, Cabrera EV, Visbal G, Rosales C, Suvire FD, Enriz RD, Angel-Guío JE. Synthesis, dopaminergic profile, and molecular dynamics calculations of N-aralkyl substituted 2-aminoindans. Bioorganic Medicinal Chemistry 16(6):3233-44, 2008.
41. Angel-Guio J, Cabrera EV, Migliore De Ángel B, Suárez-Roca H, Charris JE, Rossi R, Santiago A, López S, Ramírez MM, Hernández V, Morales M. Síntesis del N-aralquilamino-metiladamantano con posible actividad dopaminérgica central. Revista Facultad de Farmacia 70(2): 43-49, 2007
40. Piñerua-Shuhaibar L, Estévez J, Suárez-Roca H. The Zung's autoscale for depression as predictor of sensorial and autonomic alterations to pain. Invest Clinica 48(4):469-83, 2007.
39. Ávila, D., Peña N., Quintero L., Suárez-Roca H.. Antinociceptive activity of Syzygium jambos leaves extract on rats. Journal of Ethnopharmacology, 112(2):380-5, 2007
38. Morales Manssur ME, Suárez-Roca H., Estévez J. Depresión en pacientes con síntomas somáticos sin lesión orgánica aparente y sin respuesta al tratamiento de consultas externas médicas en Maracaibo. Revista Venezolana de Psiquiatría y Neurología: 52 (107): 29-35 , 2006.
37. Suarez-Roca H., Quintero L., Arcaya J.L., Arcaya E., Maixner W, Rao S.G. Stress-induced muscle allodynia and hyperalgesia: preventive effect of milnacipran. Physiology and Behavior, 88: 82-87, 2006.
36. Suarez-Roca H., Arcaya J.L, Silva J.A, Quintero L.G. Swim stress-induced hyperalgesia is initiated by desensitization of μ opioid receptors and maintained by the activity of NMDA receptors. Behavioral Brain Research, 167(2): 205-21, 2006.
35. Angel-Guío J.E., Charris J.E., Israel A., Migliore de Angel B., Suárez-Roca H., Garrido M.R., Lopez S.E., Díaz E. , Ferrer R., Michelena de Báez E., Rodríguez L.J., Silva J., Moronta A., Espinoza G., Quintero L.. Perfil dopaminérgico del compuesto 2-aminoindano N-aralquíl sustituido Archivos Venezolanos de Farmacología y Terapéutica, 23(2): 127-135, 2004
34. Uzcátegui B., Ávila D., Suárez-Roca H., Quintero L., Ortega J., González B. Anti-inflammatory, antinociceptive, and antipyretic effects of Lantana trifolia in experimental animals. Investigación Clínica 45(4): 317-322, 2004.
33. Rodríguez L.J., Medina Y., Suárez-Roca H., Migliore de Angel B., Israel A, Charris JE, López S, Caldera J.A., Angel-Guio J.E. Conformational theoretical study of substituted and non-substituted N-aralkyl-2-aminoindans and its relation with dopaminergic activity. Journal of Molecular Structure (Theochem) 636: 1-8, 2003.
32. Suarez-Roca H., Piñerua-Shuhaibar L., Morales M.E., Maixner W., Increased perception of post-ischemic paresthesias in individuals with minor depression. Journal of Psychosomatic Research 55(3):253-7, 2003
31. Quintero L, Cuesta MC, Silva JA, Arcaya JL, Pinerua-Suhaibar L, Maixner W, Suarez-Roca H. Repeated swim stress increases pain-induced expression of c-Fos in the rat lumbar cord. Brain Research 965(1-2):259-68, 2003.

30. Suarez-Roca H., Cubeddu L.X., The selective serotonin reuptake inhibitor, citalopram, induces the storage of serotonin in cathecolamine terminals. Journal of Pharmacology and Experimental Therapeutics 302(1):174-9: 2002.
29. Cuesta M.C, Quintero L., Pons H., Suarez-Roca H., Substance P and calcitonin gene-related peptide increases IL-1□, IL-6, and TNF-alfa secretion from human peripheral blood mononuclear cells. Neurochemistry International 40(4): 301-306, 2002.
28. Suárez-Roca H., Cuesta M.C., Nervios sensoriales: Funciones motoras, secretorias e inmunitarias periféricas. Archivos Venezolanos de Farmacología y Terapéutica 20(supl 1): S51-S59, 2001.
27. Quintero L., Moreno M., Avila C., Arcaya J., Maixner W., Suarez-Roca H., Long-lasting delayed hyperalgesia after subchronic swim stress. Pharmacology, Biochemistry and Behavior 67(3):449-458, 2000.
26. Gonzalez B., Suarez-Roca H., Bravo A., Salas-Auvert R., Avila D., Chemical composition and in vitro / in vivo biological activity of extracts from Arrabidea bilabiata. Pharmaceutical Biology 38 (4): 287-290, 2000.
25. Piñerua-Shuhaibar L., Prieto-Rincón D., Ferrer A., Bonilla E., Maixner W., Suarez-Roca H.. Tolerance to ischemic pain is reduced in individuals with depressive symptoms. Journal of Affective Disorders 56(1):119-126, 1999.
24. Cuesta M.C., Arcaya J.L., Cano G., Sánchez L., Maixner W., Suárez-Roca H.. Opposite modulation of capsaicin-evoked substance P release by glutamate receptors. Neurochemistry International 35(6): 471-478, 1999.
23. Cano G., Arcaya J.L., Gomez G., Maixner W., Suárez-Roca H.. Multiphasic morphine modulation of substance P release from capsaicin-sensitive primary afferents. Neurochemical Research 24(10): 1205-1209, 1999.
22. Arcaya J.L., Cano G. Gómez G., Maixner W., Suárez-Roca H.,: Dynorphin A (1-17) enhances substance P release from trigeminal nucleus caudalis capsaicin-sensitive primary afferents. European Journal of Pharmacology 366(1):27-34, 1999.
21. BOOK CHAPTER: Suarez-Roca H., Maixner W.. Opposite opioid modulation of SP-containing primary afferents. In: New Advances in Cardiovascular Physiology and Pharmacology. Excerpta Médica International, Congress Series: 1184, Eds. M. Velazco and R. Hernandez, Elservier Science Publisher, 1998.
20. Carrizo E., Cano G., Suárez-Roca H., Bonilla E.. Motor activity and quantitative autoradiographic analysis of muscarinic receptors in the brain of rats subjected to the forced swimming test. Brain Research Bulletin 42(2):133-139, 1997.
19. Cano G., Suárez-Roca H., Bonilla E.. Alterations of excitatory amino acid receptors in the brain of manganese-treated mice. Molecular and Chemical Neuropathology 30(1-2): 41-52, 1997.
18. Cano G., Suárez-Roca H., Gómez G., Arcaya J.L., Aversano C., Latán J.C., Bonilla E.. Alterations of animal motor activity in early stages of experimental manganese poisoning. Metal Ions in Biology and Medicine, 4:472-474,1996.
17. Cano G., Suárez-Roca H., Bonilla E.. Manganese poisoning reduces strychnine-insensitive glycine binding sites in the globus pallidus of the mouse brain. Investigación Clínica 37(4): 209-220, 1996.
16. Suárez-Roca H., Maixner W.. Morphine produces a bidirectional modulation of substance P r elease from cultured dorsal root ganglion neurons. Neurosciences Letters 194:1-4,1995.
15. Cuesta de Di Zio M.C., Gómez G., Bonilla E., Suárez-Roca H.. Autoreceptor presynaptic control of dopamine release from striatum is lost at early stages of manganese poisoning. Life Sciences 56:1857-1864,1995.
14. Suarez-Roca H., Maixner W.. Activation of kappa opioid receptors by U50488H and morphine enhances release of substance P from rat trigeminal nucleus slices. Journal of Pharmacology and Experimental Therapeutics 264: 648-653, 1993.
13. Chacín-Bonilla L., Bonilla E., Parra A.M., Estevez J., Morales L.M., Suarez H.. Prevalence of Entamoeba Histolytica and other intestinal parasites in a community from Maracaibo, Venezuela. Annals of Tropical Medicine and Parasitology 86: 373-380, 1992.
12. Castro-Caraballo F., Suarez-Roca H., Esteves J., Bonilla E.. Actividad motora espontánea en ratones sobrecargados con hierro-dextrano. Investigación Clínica 33: 121-134, 1992.
11. Suarez-Roca H., Maixner W.. Delta-opioid receptor activation by [D-Pen2-D-Pen5]enkephalin and morphine inhibits substance P release from trigeminal nucleus slices. European Journal of Pharmacology 229: 1-7, 1992.
10. Suarez-Roca H., Maixner W.. Morphine produces multiphasic effects on substance P release from trigeminal nucleus slices by stimulating different opioid receptor subtypes. Brain Research 579: 195-203,1992.

09. Suarez-Roca H., Abdullah L., Zuniga J., Madison S., Maixner W.. Multiphasic effects of morphine on substance P release from trigeminal nucleus slices. Brain Research 579: 187-194,1992.
08. Madison S., Whitzel E., Suarez-Roca H., Maixner W.. Sensitizing effects of leukotriene B4 on intradental primary afferents. Pain 49:99-104,1992.
07. Bonilla E., Estevez J., Suárez H., Morales L.M., Villalobos R., Dávila J.. Serum ferritin in Huntington's disease patients. Neuroscience Letters 129:22-24,1991.
06. Morales L.M., Estéves J., Suárez H., Villalobos R., Bonilla E.. Nutritional evaluation of Huntington disease patients. American Journal of Clinical Nutrition 50: 145-150, 1989.
05. Suárez-Roca H., Lovenberg T., Cubeddu L.X.. Comparative dopamine-cholinergic mechanisms in the olfactory tubercle and striatum: Effect of metoclopramide. Journal of Pharmacology and Experimental Therapeutics 243: 840-851, 1987.
04. Estevez J., Suárez H., Dávila J., Bonilla E., Morales L.M., de Bonilla L., Villalobos R.. Cobre sérico en pacientes con enfermedad de Huntington. Investigación Clínica 27: 203-211, 1986.
03. Bonilla E., Prasad A.L.N., Estevez J., Suárez H., Arrieta A., Morales L.M. and Villalobos R.. Aminoácidos plasmáticos en la enfermedad de Huntington. Investigación Clínica 27: 151-164, 1986.
02. Suárez H., Cimino F., Bonilla E.. Hierro en el sistema nervioso central. Metabolismo y consideraciones fisiopatológicas. Revisión. Investigación Clínica 26: 247-322, 1985.
01. Suárez H., Bonilla E.. Captación de Mn54 por homogenizados de cuerpo estriado de rata. Efecto de Mn2+, Fe3+, Ca2+ y Mg2+. Investigación Clínica 25: 81-101, 1984.

ABSTRACTS PRESENTED IN SCIENTIFIC MEETINGS (selection):

More than 100 abstracts presented in local, national and international scientific meetings from 1984 to 2012. Selection of the two last attended international meetings:

- **Suarez-Roca H,** Quintero L, Piñerúa L. Role of opioid and NMDA receptors in the development and maintenance of swim stress-induced thermal cutaneuos hyperalgesia. 35th Annual Meeting of the Society for Neuroscience Washington, DC, Nov 2005.
- **Suarez-Roca H**, Rubio MA, Piñerua-Shuhaibar L. Mood-dependent changes in central nociception and autonomic reactivity in painful gastrointestinal disorders. 41st Annual Meeting of the Society for Neuroscience Washington, DC, Nov 2011.

RESEARCH SUPPORT

Funds include **direct costs only,** expressed in either $US or Venezuela's currency (Ven Bs. or Ven Bs.F) and generally ***exclude investigators salaries, which are regularly provided by the University.***

Intramural funding:

- VAC-CONDES-**CC-0270-13**, 2013-2014: "Effect of cyclooxygenase inhibitors on neuroinflammation and stress-induced hyperalgesia in rats", Ven Bs.F.: 40,000. Role: co-PI.
- VAC-CONDES-**CC-0124-13**, 2013-2014: Synthesis and preliminary pharmacological study of the novel compound 4-amine - 2, 3, 4, 5-tethrahydrocenaphtene on the central dopaminergic system. Ven Bs.F.: 39.970. Role: co-PI.
- VAC-CONDES-**CC-0293-09**, 2009-2010: "Affective, sensory and autonomic characteristics of functional gastrointestinal pain disorders", Ven Bs.F.: 29,964. Role: PI.
- VAC-CONDES **CC-0732-08**, 2008–2009: "Role of tumor necrosis factor alpha in the sensitization to stress-induced muscular pain", Ven Bs.F.: 19,622. Role: Co-PI.
- VAC-CONDES **CC-0422-08**, 2008–2009: "Stress-induced muscular pain: pharmacological and immunological aspects", Ven Bs.F.: 19,465. Role: PI.
- VAC-CONDES **CC-0030-07**, 2007–2008: "Action of selective and non-selective cyclooxygenase inhibitors on spinal sensory neurons and microglia during acute inflammation", Ven Bs.: 18,714,152. Role: Co-PI.
- VAC-CONDES **CC-0880-05**, 2006–2007**:** "Central neuroimmunological activity in an animal model of psychosomatic disease", Ven Bs.: 19,986,969.
- VAC-CONDES **CC-0325-02**, 2003–2007:"Influence of repeated stress on the expression of proto-oncogen c-Fos in the nervous system induced by acute inflammatory pain", Ven Bs.: 46,283,092. Role: PI.

- VAC-CONDES **CC-1178-00**, 2000–2001: “Effect of sensory neuropeptides on the secretion of proinflammatory cytokines in human lymphocytes. US $ 8,470 + Ven Bs. 1,832,500 Role: Co-PI.
- VAC-CONDES **CC-1537-98**, 1999–2007:“Affective modulation of pain perception”, Ven Bs.: 10,534,284. Role: PI.
- VAC-CONDES **CC-2088-96**, 1997–1998: “Secretion of substance P from sensory fibers and its presynaptic control by endogenous kappa opioids”, Ven Bs.: 6,507,499. Role: PI.
- VAC-CONDES **CC-1716-95**, 1995–1998: “Role of glutamate in the control of substance P release from sensory trigeminal primary afferents”, Ven Bs.: 2,917,166. Role: Co-PI.
- VAC-CONDES **CC-1715-95**, 1995–1998: “Opiodergic regulation of the release of substance P from sensory primary afferents of the trigeminal nucleus”, Ven Bs.: 3,879,616. Role: PI.
- VAC-CONDES **CC-1130-94**, 1994–1996: “Study of the spontaneous motor activity and autoradiographic quantification of dopaminergic receptors in the brain of mice overloaded with manganese”, Ven Bs.: 834,499. Role: PI.
- VAC-CONDES **CC-1079-94**, 1994–1996: “Effect of manganese intoxication on dopamine release and its presynaptic modulation”, Ven Bs.: 992,500. Role: PI.

Extramural funding:

LOCTI (Maracaibo, Venezuela):

- **LUZ-LOCTI-115**, 2009-2010, “Establishment and development of a Clinical Unit for the Study and Treatment of Psychosomatic Diseases”, Ven Bs.F.: 20,000, donated by D’Empaire Clinic, Maracaibo (private donation). Role: PI.

ATTAGENE Biosciences, Inc. (Chapel Hill, NC, USA):

- “Evaluation of Milnacipran in a Rodent Model of Fibromyalgia”, 2002-2003: US$: 57,310. Role: PI.

CONICIT (Caracas, Venezuela):

- **S1-2000000787**, 2001–2007: “Sensory alterations induced by stress and depression: autonomic and spinal mechanism”, Ven Bs.: 89,122,257. Role: Co-PI.
- **S1-97000966**, 2000–2002: “Effect of substance P on the cytokine secretion from human peripheral blood lymphocytes”, Ven Bs.: 43,356,773. Role: Co-PI.

NIH-Fogarty International (USA):

- **R03 TW00305-03**, 1993-1997: “Opioid Modulation of Substance P Release”, US$: 60,000 Role: Co-PI.

HONORS & AWARDS

- Certified Researcher by Venezuela's Program for the Promotion of Investigation (PPI), National Council of Science and Technology (FONICIT), Government of Venezuela, since 1993.
- Teaching Professor Awards by the National Commission of Academic Benefit (CONABA), Venezuela's Ministry of Education in 1997, 2000 & 2002.
- Fellowship from the Organization of American States fellowship for 3 years of study at University of North Carolina at Chapel Hill, USA. (1988-1990)
- Highest grade average among 400 medical students at University of Zulia (1983).

ORGANIZATIONS & SOCIETIES

- Society for Neuroscience, Washington DC, USA.
- College of Physicians of the State of Zulia (Colegio de Medicos del Estado Zulia), a professional medical association, Maracaibo, Venezuela.
- Faculty Association of The University of Zulia (*Asociación de Profesores de La Universidad del Zulia*), Maracaibo, Venezuela.
- Council of Emeritus Professors of The University of Zulia (*Consejo de Profesores Jubilados de La Universidad del Zulia,* Maracaibo, Venezuela.

PERSONAL REFERENCES

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RESEARCH STATEMENT – Heberto Suarez-Roca, MD, PhD.

I am a system-oriented researcher who addresses scientific questions with integrative and translational approach, by observing and analyzing a phenomenon at different structural levels of complexity between molecular/cellular to clinical levels, in a back and forward manner of experimentation.

During the last decade, I have been characterizing and elucidating the mechanisms of body-mind interactions and its implication for diseases, with emphasis

in the interplay between stress/emotions and nociception/inflammation. I developed a rat model of body-mind interaction termed swim-stress induced hyperalgesia (SIH), in which an animal subject to repeated stress, by brief daily exposure to inescapable, non-painful, forced swimming for 3 days, displays depressed/anxiety-like behaviors and long-lasting increased pain reactivity (up to a week after stress ends) to cutaneous and muscular noxious stimuli (*Pharmacol Biochem Behav 2000; Physiol Behav, 2006*). This hyperalgesia was likely caused by an increased activation of nociceptive spinal neurons (*Brain Res 2003*). I found that SIH is prevented by treatment with antidepressants and tryptophan supplementation during the stress conditioning (*Pharmacol Biochem Behav 2000; Physiol Behav, 2006*).

In addition, I found a delayed and decreased spinal inhibitory modulation of GABA on GLU release in SIH rats (*Pain, 2011*). SIH is prevented by pre-stress blocked of NMDA and μ-opioid receptors with selective antagonists (*Behav Brain Res, 2006*) and by pre-stress enhancing modulation of GABA-A receptors with diazepam (*Behav Brain Res, 2008*). These alterations in spinal neurotransmission are associated with very subtle neuroinflammatory state characterized by slight microglial activation and increased spinal production of IL-1beta in the presence of a blunted HPA reactivity to stress (*Brain Res Bull, 2014*).

SIH is associated with depression- and anxiety-like behaviors, which resembles clinically depressed and anxious patients that have increased prevalence and report enhanced perception of somatic and visceral pain. These findings prompted me to perform translational studies with depressed patients and healthy subjects as to determine how mood changes can affect pain perception. Both patients with mild depressive symptoms and healthy subjects under experimentally-induced transient sadness report increased perception of somatic and visceral pain in the presence of altered autonomic reactivity, apparently by changes central neuronal mechanisms (*J Affect Dis, 1999; J Psychosom Res 2003; J Pain 2011*).

On the other hand, I have been involved in the discovery of new mechanisms of action for known drugs as well as the pharmacological evaluation of different compounds and substances. I reported novel mechanisms of action for clinically antidepressants and NSAIDs. Specifically, SSRI-type antidepressant citalopram induces a heterosynaptic displacement of dopamine and noradrenaline storages out of catecholamine terminals by the accumulated extracellular serotonin (*J Pharmacol Exp Ther, 2002*) and the peripheral anti-inflammatory and central anti-nociceptive actions

NSAID parecoxib are not correlated (*Brain Res Bull, 2009*). These findings can explain the clinical pharmacological profile of these drugs and contribute to their rationale use.

This succinct and basic description just has the purpose of bringing out a preliminary picture of the interweaving bodily interactions, which remains to be further studied through translational research on mood, stress, sensory function and autonomic activity. Yet, I am willing to consider new research interests that could be more suitable to enhance of your department.

Finally, I strongly believe in team work, in high quality overseeing of tasks and assignments, and assurance of personal and professional satisfaction of team members as to achieve a full development their talent and skills. I think this is crucial for meeting ambitious goals.

TEACHING STATEMENT – Heberto Suarez-Roca, MD, PhD.

My experience in teaching has been tightly linked to my research activities. I have been advisor of numerous theses for both undergraduate and graduate degrees in basic biology and immunology as well as for medical specialties such as psychiatry, anesthesiology and internal medicine. I particularly enjoy delivering apprentice-type training in basic and clinical research settings since in my opinion it imprints a life-lasting, decisive knowledge. I feel that teaching by observing, doing, and trial-and-error process, provides a more customized manner of education since it allows identifying students own skills and promotes them by a direct counseling and task assignments. I put emphasis in enhancing the reflexive capacities of students as to acquire abilities to peruse and assess scientific literature and to write scientific reports.

I have also taught in traditional ways by means of lecturing courses related to neuroscience and pharmacology for both small groups and large auditorium classes. I like to establish a strong foundation in core concepts, skills, and methodologies, as well as advanced comprehension of scientific literature, with the objective of translating it into usable knowledge that can be employed in practical work at research laboratories and professional settings. To do this I try to bond pieces of basic knowledge to its relevance for life events, especially diseases. For small groups, I ask for a presentation and discussion of relevant scientific papers before the class, making emphasis on a detailed discussion of the soundness and rational of the methodology as well as the analysis and interpretation of the outcomes of the study.

Finally, I would be excited to contribute to developing bilingual MOOCs (Spanish-English) to disseminate science knowledge to Hispanic or other minorities in your state.