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Department of Veterans Affairs
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Miami VA Research & Development

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Issue 4

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Pain: A multidimensional problem of national priority

Eva G. Widerström-Noga, DDS, PhD



The official definition of pain endorsed by the International Association for the Study of Pain states "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage". Furthermore, the definition suggests that pain is always subjective: "It is unquestionably a sensation in a part or parts of the body, but it is also always unpleasant and therefore also an emotional experience." The definition also includes "Activity induced in the nociceptor and nociceptive pathways by a noxious stimulus is not pain, which is always a psychological state, even though we may well appreciate that pain most often has a proximate physical cause." The definition of pain is

important because it emphasizes that pain is a multidimensional problem and thus the ultimate cure for pain must target all underlying pathophysiology and contributing psychosocial factors. The definition also highlights the complexity of pain and difficulty in translating basic pain research findings based on evoked nociceptive behaviors in animals into effective pain treatments for patients.

Persistent pain conditions are common health problems and major reasons for seeking medical care in the general population as well as in the veteran population. However, because of current and past conflicts, the number of military personnel and veterans who sustain injuries to the central and peripheral nervous system (e.g., traumatic brain injury, spinal cord injury [SCI], amputations) has increased. Unfortunately, these injuries often result in persistent pain, significant disability, and problems that cause decreased quality of life. Indeed, chronic pain is a leading cause of disability among veterans and a major contributor to the rising costs of the Department of Veterans Affairs (VA) Health and Disability systems.

(continue on page 4)

Journal of Rehabilitation Research & Development, Volume 46, Number 1, 2009, Pages vii-ix
<http://www.rehab.research.va.gov/jour/09/46/1/index.html>

National VA Research Week

As part of the 2009 National VA Research Week, the Miami VA Research Service Office hosted the second Miami VA Research Awareness Day Poster Presentation. The planning and organization process for the program was as challenging as the first year. The response was once again very positive. Forty-four abstracts were submitted and approved in the following categories: Basic Science (12), Clinical Science (11), Health Services (8) and Young Research Investigators (13). Each abstract was anonymously sent to three appropriate judges who graded the abstracts. The judging forms were returned electronically and the results were calculated. Four top winners were selected and 13

Miami Research Awareness Day

awards for honorable mention were given.

The program took place on May 12, 2009 from 1:30 pm to 3:30 pm in the TC Doherty Auditorium. There were over 100 attendees and several patients. A large television set was displayed in the front of the auditorium which broadcasted the DVD entitled "VA Research & Development Highlight Video and Research Advances" provided by the ORD. Additionally, a display of PTSD focus research studies including cooperative pharmacological studies and meditation-focused trials was available. Other informational materials provided by ORD were displayed at the front registration desk and distributed to all attendees.

(continue on page 2)

Special Point of Interest:

"VA's Research and Development program is an essential part of our mission to provide cutting-edge health care to our Nation's Veterans. As we seek to transform VA, three fundamental attributes mark the starting point for framing a 21st Century Organization: people-centric, results driven, and forward-looking; these attributes require continued and increased emphasis on discovery, innovation, and best-practices."



Eric K. Shinseki
Secretary, Department of Veterans Affairs

Miami VA Research Awareness Day

"VA Research: Turning Hope into Reality"



As a special keepsake black and white lanyards engraved with this year's theme statement- "VA Research: Turning Hope into Reality" were given to all presenters, judges, attendees and special guests.

The program began with an introduction from Dr. Robert M. Jackson, ACOS for Research, followed with remarks by Ms. Mary D. Berrocal, MBA, the Medical Center Director. Ms. Berrocal welcomed two guests representing our congressional districts and summarized areas of research being conducted by our VA investigators

and their key roles in developing devices and techniques that are revolutionizing health care. In closing remarks, Dr. John Vara, Chief of Staff, reiterated the importance of VA research as a leader in many areas of research. Dr. Jackson highlighted the work of several leading Miami VA investigators. He concluded with the announcement of the winners and distribution of awards.

Hospital staff and patients currently participating in relevant clinical studies attended. Interested faculty and researchers

from the University of Miami Miller School of Medicine also attended including Dr. Pascal Goldschmidt, Senior Vice President for Medical Affairs and Dean. Also in attendance were Ms. Laura Muniz, Regional Director for Senator Mel Martinez and Ms. Laura Fatovic, Regional Director for Senator Bill Nelson.



Poster Presentation Winners

Best Overall Basic Science Presentation
Ming Sheng Zhou, M.D., Ph.D.

Best Overall Clinical Science Presentation
Julie E. Malphurs, Ph.D.

Honorable Mention
Rama Rao, Ph.D.
Mary J. Eaton, Ph.D.
Manhui Pang, Ph.D.
Wayne Balkan, Ph.D.

Best Overall Health Services Presentation
Alex Sanchez, M.D.

Best Overall Young Research Investigator Presentation
Ketian Chen, M.S.

Honorable Mention
Carlton Gass, Ph.D.
Elizabeth R. Felix, Ph.D.
Eva Noga-Widerstrom, DDS, Ph.D.
Luis Salgueiro, Ph.D., DVM

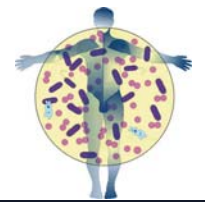
Honorable Mention
Daniel Pelaez, M.S.
Medhi Wangpaichitr, Ph.D.
Elisa Garbayo, Ph.D.
Ignacio Gaunaurd, MSPT
Carmen Rios, B.S.



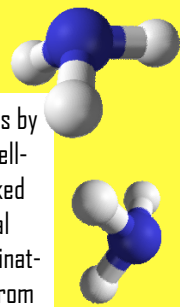
Course on Evidence-Based Chronic Illness Care (EBCIC)

Drs. Orlando Gomez and Hermes Florez are among the investigators and providers from the Miami VA Healthcare System and the Miller School of Medicine that are teaching in an international course organized by the Pan American Health Organization on "Evidence Based Chronic Illness Care". The course will introduce students to ways in which health systems can be reoriented to better manage chronic conditions such as diabetes, cardiovascular diseases, cancer and chronic obstructive pulmonary disease. This topic is of pressing concern to health systems around the world as life expectancy and exposure to risks for chronic health problems rise.

The course is taking place in the Clinical Research Building at the University of Miami on July 12-17, 2009 and is expected to have major impact on policy development for the management of chronic diseases in most Latin American and Caribbean countries. The strategies discussed in this course are also implemented in South Florida as part of the Healthy Aging Regional Collaborative that include 4 programs. Chronic Disease Self-Management is one of these programs to improve the care and well-being of older veterans with type 2 diabetes.



Research Highlights Drs. Norenberg & Jayakumar



Drs. Arumugam Jayakumar and Michael Norenberg were invited to present their work at the 5th International Hanover Conference on Hepatic Encephalopathy and Nitrogen Metabolism held in Mainz, Germany, May 23-26, 2009. Dr. Jayakumar discussed the role of the ion cotransporter NKCC in the brain edema associated with acute liver failure (ALF). The latter is a life-threatening condition because of the development of increased intracranial pressure and brain herniation and there is currently no effective therapy for this condition other than an emergency liver transplant.

Dr. Jayakumar showed that the activity of NKCC was increased in brain cells (astrocytes) in culture treated with ammonia (the principal toxin in ALF) and such increase was involved in cell swelling as the inhibitor of NKCC, bumetanide, abolished the cell swelling. Similar observations were reported in a rat model of ALF, where NKCC activity was elevated in brain, and the brain edema was diminished with bumetanide. The investigators ultimately aim to establish the utility of bumetanide, a commonly used diuretic, in humans suffering with ALF.

Dr. Norenberg was invited to review the cellular signaling pathways by which ammonia causes astrocyte swelling and brain edema. He was also asked to review the pathogenesis of central pontine myelinolysis (CPM), a demyelinating neurological condition resulting from the rapid correction of hyponatremia. He presented new data showing that such demyelination is due to osmotic injury to endothelial cells. These CPM studies were done in collaboration with Joshua Johnstone and John Bethea from the Miami Project to Cure Paralysis.



Attention: Miami VA Research Investigators

Matching Interest With Need



Novartis Pharmaceutical Corporation has demonstrated a firm commitment to developing long term relationships with VA Investigators. The Master CRADA has greatly streamline VA participation in clinical trials with Novartis.

The following clinical trials are available to all interested VA research investigators.

For more information, please call Dan Heller at 305-575-7000 ext. 4495.

Cardiovascular Disease

- Treatment for Chronic Systolic Heart Failure

Respiratory Disease, Dermatology

- LABA and LAMA alone and in Combination in COPD
- LABA/Steroid in Asthma
- Biologics in Psoriasis
- Nicotine Vaccine (2011)
- Add-on Treatment in Pulmonary Atrial Hypertension

Infectious Disease Hepatology, Immunology (i.e. Arthritis, Gout)

- Transport immunosuppressive therapies
- Pretreatment for Dialysis
- (non-interferon) Treatment for Hepatitis B and C
- Treatment for acute resistant Gout flares
- Biologic in OsteoArthritis and RA

Neuroscience

- Novel treatment for Multiple Sclerosis

South Florida VA Foundation for Research and Education, Inc.

Master CRADAs

- Amgen
- Astellas
- Astrazeneca
- Avigen
- Bristol-Myers Squibb
- Genentech
- GSK
- Lilly & Lilly
- Merck
- Novartis
- OncoGenex
- Pfizer
- Regenesis Biomedical
- Roche
- Sanofi-Aventis
- Sucampo
- Takeda

Miami VA

Master CRADAs executed:

- | | |
|--------------------------|------------------|
| Novartis-Phase III CT | Jackson |
| ZymoGenetics | Jeffers |
| Pfizer-Phase III-CT | Martinez-Arizala |
| GlaxoSmithKline | Mendes |
| AstraZeneca-Phase III CT | Quartin |
| Novartis | Schob |

Local CRADAs under negotiation:

- | | |
|---------------------|------------|
| Pfizer | Tunuguntla |
| Novartis | Raj |
| IdealLife-Device CT | Dang |
| Bayer-Phase III CT | Quartin |

If you have a project you would like to pursue, please stop by. We are happy to help.

Awarded:

- | | |
|---------|--------------------------|
| Schally | Zentaris |
| Gailey | CHAMPS II (DOD subaward) |
| Klimas | USAMRMC grant |

Submitted:

- | | |
|--------------|---|
| Yu | NIH R21 Bone Marrow Derived Progenitor Cells in Atherosclerosis |
| Klimas | NIH R01 Chronic Fatigue Syndrome |
| Eton | NIH Challenge Grant Chronic Limb Threatening Ischemia |
| Eton | NIH R01 Chronic Limb Threatening Ischemia |
| Savaraj | USAMRMC Targeted Therapy for Mesothelioma |
| Wangpaichitr | USAMRMC Prostate Cancer |

"SFVAFRE wants your project"



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Pain: A multidimensional problem of national priority

Rehab R&D
Rehabilitation Research & Development

JRRD
Journal of Rehabilitation
Research & Development

Most people who have sustained an SCI develop persistent pain over time. Some of these pains are nociceptive, whereas others are neuropathic and a direct result of the injury. Importantly, most people experience more than one concomitant pain problem. Although the neuropathic pains are particularly therapy-resistant and therefore difficult to cope with, the nociceptive pains, such as shoulder pain, may also cause significant problems and impair an individual's functional independence by interfering with common daily activities such as wheelchair operation, including transfers. When an individual with SCI has to cope with several simultaneous and persistent pain problems in addition to the physical impairment, it causes a significant increased burden and distress. Therefore, improved pain relief is very important for optimal quality of life after SCI.

The need to make pain management among veterans a national priority was recently emphasized in the timely Veterans' Mental Health and Other Care Improvements Act of 2008 (S. 2162). This effort includes the Veterans Pain Care Act, which was passed by Congress and approved by President Bush in mid-October 2008. The Veterans Pain Care Act includes a comprehensive and integrated plan for pain care across the VA healthcare system. This law will add resources to increase research, training, and education on acute and chronic pain within the VA system. Researchers have suggested that the diagnosis, assessment, and management of pain should be integral parts of military healthcare and that interdisciplinary approaches to pain management should be applied for complex pain problems. The success of such approaches depends on a combination of factors, including the implementation of pain research findings into clinical settings. For effective advancement of clinical pain management, several lines of research need to be integrated, including (1) translation of clinically relevant basic research regarding pain mechanisms and novel treatment interventions into the clinical arena, (2) development of valid pain measurement tools that are consistent with

basic research methods and can reliably identify underlying pathophysiological and psychosocial mechanisms of pain in each individual patient, and (3) development and testing of cost-effective treatment interventions designed to decrease disability and affective distress and increase quality of life. The ultimate treatment should target each individual's underlying mechanisms of pain and important psychosocial contributors.

The present single-topic issue concerns several important research areas relevant for both the understanding of pain and the development of future effective treatments for pain associated with SCI. Because the pains that are experienced after an SCI are particularly complex, effective communication between the basic and clinical research communities and clinical care providers is critical for the progress in this area. Undoubtedly, pain after an SCI causes significant suffering among our veterans as well as in the general public. To experience pain in an area where sensibility is impaired or absent is a paradoxical problem that may be difficult to understand for the patient who experiences pain as well as for family and caretakers. I hope that the collection of articles included in this issue will be useful and educational regarding pain after SCI. This issue will also remind the clinical and research communities involved in SCI treatment and study that persistent pain continues to be a significant problem for those with SCI and that additional efforts must be made in this area to accelerate the development of beneficial treatment strategies for SCI-related pain. In addition to research, a standard pain evaluation is also important to promote as part of the routine care of veterans with SCI. Implementing a standard pain evaluation for those with SCI will not only raise awareness of this clinical problem but also increase the knowledge base and facilitate collaboration among facilities and multicenter trials. A basic data set for clinical evaluation of pain after SCI was recently developed by an international expert panel, and endorsed by several major pain organizations and SCI societies.

Research Highlights

Dr. Andrew V. Schally, PhD, MDhc (Multi), D.Sc hc



Dr. Schally is the associate editor of *Hormone Molecular Biology and Clinical Investigation* (HMBCI) a new journal which is dedicated to the provision of basic data on molecular aspects of hormones in physiology and in pathophysiology. The journal will cover the treatment of major diseases, such as endocrine cancers (breast, prostate, endometrium, ovary), renal and lymphoid carcinoma, hypertension, cardiovascular systems, osteoporosis, hormone deficiency in menopause and andropause, obesity, diabetes, brain and related diseases, metabolic syndrome, sexual dysfunction, fetal and pregnancy diseases, as well as the treatment of dysfunctions and deficiencies. The journal will cover new data on the different steps and factors involved in the mechanism of hormone action. It will equally examine the relation of hormones with the immune system and its environment, as well as new developments in hormone measurements.

5th International Biotechnology Forum May 8-9, 2009 Athens, Greece

The 5th International Biotechnology Forum was organized by the Society for Biotechnology, Biosciences and Culture. Dr. Schally was one of the honorary speakers along with Professor P. Chambon (The Lasker Prize in Basic Medical Research 2004), College de France, France, Richard J. Roberts (The Nobel Prize in Physiology or Medicine 1993), New England Biolabs Beverly, MA, USA, and Sir Peter Mansfield (The Nobel Prize in Physiology or Medicine 2003), University of Nottingham, School of Physics and Astronomy Nottingham, United Kingdom. Dr. Schally received the Gold Medal of the Hellenic Physiology Society.

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**SOCIETY FOR
BIOTECHNOLOGY
BIOSCIENCES
& CULTURE**

Research Highlights Geriatric Research Education & Clinical Center



Dr. Paul Schiller, member of the VA ENDO-B Merit Review Board, took part in their recent review session. This review panel reviews applications involving research on skeletal formation and repair, and bone and cartilage metabolism.

Dr. Guy Howard participated as a member of the national VA Research Career Scientist and Promotion Review Committee that evaluates applications from relatively senior PhD scientists within the VA for salary awards beyond their respective research grant funding. This committee also reviews applications and makes recommendations for promotion of VA scientists to the GS-14 and GS-15 grade levels.

Dr. Howard has been appointed as a member of the NIH Skeletal Biology Development and Disease Study Section, Center for Scientific Review for the period July 1, 2009 to June 30, 2013.

Dr. Howard recently participated as a member of the VA Career Development Awards Study Section that meets to review grant applications from young MD and PhD investigators seeking support for their respective research projects.



Dr. Bruce Troen, member of the AFAR (American Federation for Aging Research) Postdoctoral Fellowship review committee, met at the end of May in Scottsdale, AZ to review this year's applications.

Dr. Troen is Chair of the AGS (American Geriatrics Society) Program Committee for the 2010 annual meeting of the AGS. Committee duties include developing the program, selecting the award speakers, reviewing and selecting all symposia, workshop, meet-the-expert proposals, and deciding the state-of-the-art curriculum lectures. He chaired this year's meeting on July 10 in New York.

Dr. Carlos Perez-Stable served as a Scientific Reviewer for the DOD Prostate Cancer Research Program (PCRP) online review of Idea Award 2 page pre-applications-Endocrinology Section.

Dr. Bernard A. Roos is president of the newly established Florida Chapter of AFAR (Am Federation for Aging Research) and Dr. Troen is on the Board of that new organization for research on aging and age-related diseases.

Grants Funded GRECC Prizes/Awards Received

-  Melvys Valledor, graduate student with Dr. Paul Schiller, awarded an NIH F-31, Ruth L. Kirschstein National Research Service Award (NRSA) Predoctoral Fellowship Award to Promote Diversity in Health-Related Research.
-  Dr. Balakrishna Lokeshwar received a VA Merit Review Award.
-  Dr. Herman Cheung received a University of Miami Interdisciplinary Award.
-  Dr. Ramiro Verdun received a State of Florida Biomedical Research Award
-  Dr. Adam Golden received a grant from American Eldercare.
-  Dr. Renuka Tunuguntla received a grant from the Pfizer Foundation.
-  Dr. Priya Rai was awarded both a State of Florida Biomedical Research Award and a Papanicolaou (Pap) Corps Cancer Investigator Award.
-  Dr. Damian Stanziano received an NIH / Nat'l Heart, Lung, and Blood Institute postdoctoral fellowship.

- Kevin Curtis, graduate student with Dr. Paul Schiller, 1st Prize poster for senior student at the University of Miami, Department of Biochemistry and Molecular Biology annual retreat.
- Melvys Valledor, graduate student with Dr. Paul Schiller, 1st Prize poster for junior student at the University of Miami, Department of Biochemistry and Molecular Biology annual retreat.
- Alex Sanchez, MD, Geriatrics Fellow, 1st Prize poster in HSR&D category at Miami VA Research Week poster presentations.
- Ketian Chen, graduate student with Dr. Guy Howard, 1st Prize Overall poster for young investigator.

Save the Date: September 25, 2009 Study Coordinator Workshop

The next Study Coordinator's Workshop is scheduled for September 25th, 2009 in the Research Conference Room 207. The Research IRB Staff as well as the Research Compliance Officer will be present and will answer any questions you may have. All interested research staff and others are welcome.

Suggestions for topics of discussion are welcome.

Please contact Gladys Benedi for more information at ext 3793 or gladys.benedi@va.gov



GRECC

Robert K. Fujimura, Teresita Reiner, Fangchao Ma, Virginia Phillips, Dennis W. Dickson, Bernard A. Roos, Guy A. Howard, and Carlos Perez-Stable. *Changes in the expression of genes associated with intraneuronal amyloid beta and tau in Alzheimer's disease.* J Alzheimer's Dis 2009 . In Press

Levis, S., Cherniack, E.P., Florez, H., Roos, B.A., Troen, B.R. *Vitamin D Supplementation In Older Persons: Benefits And Requirements.* Future Medicine-Aging Health 2009. In Press

Balkan, W., Martinez, A.F., Fernandez, I., Rodriguez, M.A., Pang, M., Troen, B.R. *Identification of NFAT Binding Sites that Mediate RANKL Stimulation of Cathepsin K Promoter Activity.* Gene 2009 .In Press, epub: <http://dx.doi.org/10.1016/j.gene.2009.06.013>

Ruiz JG, Qadri SS, Karides M, Castillo C, Milanez MN, Roos BA. *Fellows' Perceptions of a Mandatory Reflective Electronic Portfolio in a Geriatric Medicine Fellowship Program.* Educational Gerontology 2009. In Press

Duque, G., Demonteiro, D., and Troen, B.R. *The Prevention and Treatment of Senile Osteoporosis and Hip Fractures.* Minerva Med. 100(1):79-94, 2009.

Duque, G. and Troen, B.R. *Osteoporosis.* In "Hazzard's Principles of Geriatric Medicine and Gerontology" - 6th edition (Halter, Ouslander, Tinetti, Asthana, High, Studenski, Eds.) McGraw-Hill, New York, NY, pp. 1421-1434, 2009.



Qadri SS, Ruiz JG, Wang J, Roos BA. *Personal Digital Assistants as Point-of-Care Tools in Long-Term Care Facilities: A Pilot Study.* Educational Gerontology 2009; 35:296-307.

Ruiz JG, Candler CS, Qadri SS, Roos BA. *E-learning as evidence of educational scholarship: a survey of chairs of promotion and tenure committees at US medical schools.* Acad Med. 2009;84:47-57.

Bagri AS, Zaw KM, Milanez MN, Palacios JC, Qadri SS, Bliss LA, Roos BA and Ruiz JG. *Geriatric Medicine Fellows' Experiences and Attitudes Toward an Objective Structured Clinical Examination (OSCE).* Educational Gerontology 2009;35:281-293.

Bagri A, Roos BA, Ruiz JG. *Simulation Technology in Geriatric Education.* Geriatrics and Aging, 11 (10): 596-600, 2009.

**EL Misdraji, CS Gass.**

The Trail Making Test and its neurobehavioral components. *Journal of Clinical and Experimental Neuropsychology* 2009, iFirst, 1

Abstract- This study investigates the neurobehavioral components involved in Trail Making Test (TMT; Parts A and B) performance and their relation to MMPI-2 measures of anxiety and depression. Consecutive patients (N = 192) referred for a comprehensive neuropsychological evaluation at a U.S. Department of Veterans Affairs (VA) Medical Center comprised the sample. Results: graphomotor speed and mental shifting were significantly associated with Wechsler Adult Intelligence Scale-Third Edition (WAIS-III) indexes, whereas visual scanning efficiency was not. Graphomotor speed accounted for a substantially greater portion of the variance in TMT performance within impaired than within normal groups. Levels of anxiety and depressive symptoms were unrelated to TMT performance. Implications and directions for future research are discussed.

**Mary J. Eaton, PhD; Stacey Q. Wolfe.**

Clinical feasibility for cell therapy using human neuronal cell line to treat neuropathic behavioral hypersensitivity following spinal cord injury in rats. *Journal of Rehabilitation Research & Development*, Vol 46, Number 1, 2009, Pages 145-166.

Abstract—Management of neuropathic pain remains problematic; however, cell therapy to treat the effects of pain on the sensory system after spinal cord injury (SCI) could be a useful approach. Since many clinical trials ultimately do not succeed, use of cell therapy will require that safety and efficacy issues be addressed early in preclinical rat studies. We used the human neuronal cell line hNT2.17, which secretes the inhibitory neurotransmitters gamma-aminobutyric acid and glycine, in an excitotoxic SCI pain model after intraspinal injection of quisqualic acid into rats. One week after lumbar transplant of these cells, behavioral hypersensitivity was permanently reversed. Antinociceptive grafts displayed an optimal transplant time that included moderate effectiveness with chronic SCI and late graft placement and that required a minimal course of cyclosporine A 2 weeks after transplant for durable reversal of painlike behaviors. In addition, grafts did not need to be placed near the SCI level to be effective. These data suggest not only that these cells are safe and efficacious but also that they could be an effective clinical tool for treating SCI-associated neuropathic pain.



Endocrine, Polypeptide and Cancer Institute

Köster F, Engel JB, Schally AV, Hönig A, Schöer A, Seitz S, Hohla F, Ortmann O, Diedrich K, Buchholz S. *Triple-negative breast cancers express receptors for growth hormone-releasing hormone (GHRH) and respond to GHRH antagonists with growth inhibition.* Breast Cancer Research Treatment 116:273-279, 2009

Theophanous E, Petraki C, Scorilas A, Kombarozos V, Veloudis G, Schally AV, Koutsilieris M. *The immunohistochemical expression of growth hormone-releasing hormone receptor splice variant 1 is a favorable prognostic marker in colorectal cancer.* Mol Med 15:242-247, 2009

Seitz S, Schally AV, Papadia A, Clueck S, Calfa C, Ortmann O, Buhholz S. *Effective tumor growth inhibition of MX1 and MDA-BM-231 estrogen receptor negative human breast cancer xenografts by treatment with LHRH antagonist Cetrorelix.* Abstract presented at the 31st Annual San Antonio Breast Cancer Symposium. San Antonio, TX, December 10-14, 2008. Cancer Res 69(Suppl.): (2) January 15, 2009

Takeuchi RM, Tziomalos K, Takeuchi LM, Hurtado M, Song Y, Treuer A, Dulce R, Block NL, F Rick, Hu Q, Varga JL, Schally AV, Hare JM. *Growth-Hormone-Releasing-Hormone (GHRH) Agonist as a Potential Cardioprotective Agent in Rats with Post-Myocardial infarction (MI).* American Heart Association Abstract No. 09-SS-A-18583-AHA

Barabutis N, Schally AV. *Antioxidant activity of growth hormone-related hormone antagonists in LnCaP human prostate cancer line.* PNAS 2008; 105(51):20470-20475.



Lee LT, Schally AV, Liebow C, Lee PP, Lee PH, Lee MT. *Dephosphorylation of cancer-protein by tyrosine phosphatases in response to analogues of luteinizing hormone-releasing hormone and somatostatin.* Anticancer Research 28:2599-2605, 2008

Emons G, Sindermann H, Engel J, Schally AV, Grundker C. *Luteinizing Hormone-Releasing Hormone Receptor-Targeted Chemotherapy Using AN-152.* Neuroendocrinology 90(1):15-18, 2009

Treszl A, Schally AV, Seitz S, Szalontay L, Rick FG, Halmos G. *Inhibition of human non-small cell lung cancers with a targeted cytotoxic somatostatin analog, AN-162.* Peptides 30: 1643-1650, 2009.

Buhholz S, Seitz S, Schally AV, Engel JB, Rick FG, Szalontay L, Hohla F, Krishan A, Papadia A, Gaiser T, Ortmann O, Brockhoff G, Köster F. *Triple negative breast cancers express receptors for LHRH and their growth can be inhibited by the LHRH antagonist Cetrorelix.* Int. J Oncology: In Press

Laklai H, Laval S, Rochoaix P, Hagedom M, Bikfalvi A, Schally AV, Susini C, Pyronnet S, Bousquet C. *Thrombospondin-1 is a critical effector of onco-suppressive activity of sst2somatostatin receptor on pancreatic cancer.* PNAS: In Press

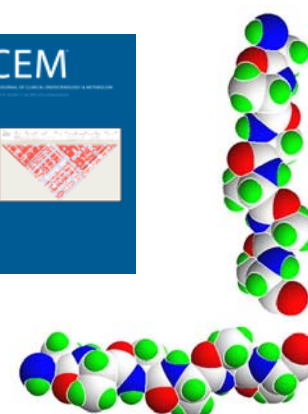
Rozsa B, Juhasz A, Schally AV, Treszl A, Toth G, Flasko T, Dezso B, Block NL, and Halmos G. *Expression of mRNA for human type-1 LHRH receptor transcript forms and LHRH-1 ligand in human benign prostatic hyperplasia.* International Journal of Oncology: In Press

**Hong Yu, Ph.D.**

Wu Q, Shao H, Eton D, et al., Webster KA, Yu H. *Extracellular calcium increases CXCR4 Expression on Bone Marrow-derived Cells and Enhances Pro-Angiogenesis Therapy.* J Cell Mol Med. 2009. In press. <http://www.ncbi.nlm.nih.gov/pubmed/19220581>

Yu H, Azatian A, Dai W, Schneiders FI, Lord R. *Effectiveness of HSV-tk suicide gene therapy driven by the Grp78 stress-inducible promoter in esophagogastric junction and gastric adenocarcinomas.* J Gastrointest Surg. 13:1044-1051. 2009. <http://www.springerlink.com/content/5228631384564277> <http://www.ncbi.nlm.nih.gov/sites/entrez>

Tan Y, Li Y, et al., Webster KA, Yan J, Yu H, Cai L and Li X. *A novel CXCR4 antagonist derived from human SDF-1b enhances angiogenesis in ischemic mice.* Cardiovascular Res. 82:513-521, 2009. <http://cardiovascres.oxfordjournals.org/cgi/content/abstract/cvp044v2> <http://www.ncbi.nlm.nih.gov/pubmed/19196827>



PRESENTATIONS

Mary J. Eaton, Ph.D.

XIVth World Congress of Neurological Surgery, Boston, MA, Aug 30-Sep 4, 2009.

Wolfe SQ, Martinez M, Salguiero Y, Hernandez M, Eaton MJ:
"Intrathecal Transplantation of a Human Neuronal Cell Line for the Treatment of Neuropathic Pain: Pre-Clinical Studies to Evaluate Clinical Use".

11th Nordic Spinal Cord Society Congress, Viborg, Denmark, June 3rd-6th, 2009.

Mladenovic M, Hultborn H, Biering-Sørensen F., Eaton M.J. (2009)
"GABA - producing hNT2.17 cell line in treatment of neuropathic pain - like behaviour after severe contusive SCI in the rat."

Congress of Neurosurgery, New Orleans, LA, October 24-29, 2009.

Wolfe, SQ; Berrocal, Y.; Pearse, DD; and Eaton, M.J. (2009) *Motor recovery after contusive SCI improved by intraspinal grafts, while behavioral hypersensitivity reversed by lumbar intrathecal grafts of human serotonergic hNT2.19 cells.*

Ross University Research Day, Sept. 2009.

Cumberbatch NM, Wolfe SQ, Eaton MJ:
Intrathecal transplantation of the hNT2.17 human neuronal cell line in an excitotoxic spinal cord injury: Efficacy and histopathology.

VA Research Day, Miami, FL, May 12, 2009.

Eaton, M.J, Berrocal, Y, Pearse, DD, Holohean, A, Martinez, M, Perez, M, Salgueiro, Y. (2009) *Differential motor or sensory system recovery after severe contusive SCI with human serotonergic hNT2.19 cell line is dependent on the graft site in the spinal cord after injury.*

Eaton, M.J, Wolfe, SQ, Martinez, M, Perez, M, Salgueiro, Y. (2009)
SUMMARY of the clinical feasibility for cell therapy utilizing a GABAergic human neuronal cell line, hNT2.17, to treat neuropathic pain following excitotoxic SCI.

GRECC

Annual Meeting of the Endocrine Society, Washington, DC, June, 2009.

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FEEDBACK

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