# Miami VA R&D eNewsletter

Bruce W. Carter Department of Veterans Affairs Medical Center



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# **IN THE NEWS**

Million Veteran Program (MVP) reaches another milestone at the Miami VA Healthcare System



Jennys Nuñez signs the MVP consent form

The Miami VA Million Veteran Program (MVP) has reached another significant milestone: 8,000 (EIGHT THOUSAND) VETERANS ENROLLED. "This is a tribute to the hard work and dedication of our team both in Miami (Hector Villagran and Lisset Oropesa) and Broward (Carmen Guanipa and Miriam Gutt) said Dr. Hermes Florez, MVP Local Site Investigator. Nationwide the MVP also reached the milestone of a quarter million last month. The team is trying to revolutionize health care, by partnering not only with Veterans receiving care at the local sites, but also with personnel who are also Veterans and understand the potential of a study designed to investigate how genes affect health. Ms. Jennys Nuñez, a member of the GRECC, was the 8,000<sup>th</sup> enrolled in MVP at Miami.

The VA's Million Veteran Program is one of the largest genetics initiatives ever undertaken in the U.S. and its visionary genomics and genetics approach will provide new insights about how genes affect health.

The goal is to improve healthcare for veterans by understanding the genetic basis of many common conditions. The data will ultimately be beneficial to the healthcare of all veterans and of the wider community.



Hector Villagran explains the MVP forms to Jennys Nuñez

# **RESEARCH SPOTLIGHT**

#### Nobel winner still chasing thrill of discovery



Andrew V. Schally, PhD, MDhc (Multi), D.Sc,hc, Chief of the Endocrine, Polypeptide and Cancer Institute, Veterans Affairs Medical Center and Distinguished Leonard M. Miller Professor of Pathology and Professor, Division of Hematology/Oncology, University of Miami Miller School of Medicine.

Dr. Andrew V. Schally presented the keynote address at the 30<sup>th</sup> Annual Graduate Research Day at Georgia Regents University, Augusta, GA on March 20-21. His talk entitled *Hypothalamic Hormones: From Neuroendocrinology to Therapy of Cancer and Other Diseases* reviewed his groundbreaking work.

Dr. Schally is collaborating with three GRU researchers on pneumonia, retinopathy and kidney damage from diabetes. They are but a few of

the number of collaborators in various diseases that range from cancer to diabetes to Alzheimer's disease to helping the heart heal after a heart attack. <u>Read more</u>

#### Role of environment in dry eye update

Anat Galor, M.D. and her team evaluated the role of environment in dry eye by applying a "timespace lagged environmental analysis" to calculate exposure at VA eye clinic facilities and then modeled the risks of dry eye with respect to this information. This was done by linking health data as provided by the National Veterans Administration (VA) database to environmental data as provided by the National Climatic Data Center (NCDC) and National Aeronautics and Space Administration (NASA). Between July 5, 2006 and July 4, 2011, a total of 3.41 million unique patients were seen in one of 394 VA eye clinics within the continental US. Of these, 606,708 carried an International Classification of Diseases (ICD) 9 diagnosis (375.15) for dry eye and received therapy for the disorder. Looking at the distribution of dry eye cases, a spatial trend was evident with northern and eastern areas displaying higher levels of dry eye compared to southern and western areas (Figure).

Among the variables studied, air pollution (as measured by AOD) and atmospheric pressure emerged as the most influential risk factors. AOD is an (atmospheric) columnar estimate of the concentration of aerosols (solid and liquid particles suspended in the air) and can be used as a surrogate measure



Figure: Distribution of dry eye cases (top) and air pollution (bottom) by VA eye care facility with respect to the national averages across the continental US. SD=standard deviation; $PM_{2.5}$  =particulate matter  $\leq 2.5 \mu m$ 

for air pollution when calibrated for meteorological conditions. AOD is closely related to other air pollution metrics like concentration of fine and coarse particulates ( $PM_{2.5}$  and  $PM_{10}$ , respectively). Regarding pollution, those exposed to high levels of AOD had a higher dry eye risk (incidence rate ratio (IRR) 1.126, 95% confidence interval (CI) 1.125-1.127, p<0.001). Most metropolitan areas, including New York City, Chicago, and Los Angeles, had relatively high concentrations of AOD and high rates of dry eye. Regarding atmospheric pressure, those exposed to higher pressure had a higher dry eye risk (IRR = 1.131, 95% CI 1.129-1.133, p<0.001). Higher humidity and wind speed were inversely associated dry eye risk (IRR 0.927, 95% CI 0.926-0.927 and IRR 0.938, 95% CI 0.937-0.939, respectively, p<0.001), suggesting that these meteorological conditions may be protective against dry eye. This work was the first of its type, and received much media attention (cited in several print and online news sources, e.g. http://www.sciencedaily.com/releases/2013/ 11/131116171106.htm). Galor A, Kumar N, Feuer W, Lee DJ. Environmental Factors Affect the Risk of Dry Eye Syndrome in a United States Veteran Population. Ophthalmology. 2014 Feb 21.

A second study investigating the effect of environment on dry eye in younger veterans correlated situational exposures and psychiatric disease with self-reported ocular surface symptoms in a younger veteran population involved in Operation Iraqi Freedom and Operation Enduring Freedom

(OIF/OEF). Of 115 participants, the average age was 33 years. While overseas, exposure to incinerated waste (odds ratio [OR] 2.67, 95% confidence interval [CI] 1.23-5.81, P = 0.02) and PTSD (OR 2.68, 95% CI 1.23-5.85, P = 0.02) were associated with selfreported ocular surface symptoms. On return to the United States, older age (OR per decade 2.66, 95% CI 1.65-4.31, P = 0.04) was associated with persistent symptoms and incinerated waste was associated with resolution of symptoms (OR 0.25, 95% CI 0.07-0.90, P = 0.04). When evaluating symptom severity, 26% of the responders complained of severe ocular surface symptoms, with PTSD (OR 3.10, 95% CI 1.22-7.88, P = 0.02) and depression (OR 4.28, 95% CI 1.71-10.68, P = 0.002) being significant risk factors for their presence. This study concluded that PTSD was significantly associated with ocular surface symptoms both abroad and on return to the United States, whereas air pollution in the form of incinerated waste, was correlated with reversible symptoms. Modi YS, Qurban Q, Zlotcavitch L, Echeverri RJ, Feuer W, Florez H, Galor A.Ocular surface symptoms in veterans returning from operation iragi freedom and operation enduring freedom. Invest Ophthalmol Vis Sci. 2014. Feb 3;55(2):650-3.

**Carlos Perez-Stable, Ph.D.**, GRECC investigator, served as a Scientific Reviewer for the 2014 DoD Prostate Cancer Research Program (PCRP) Pre-Proposals, Endocrinology Section.



**Bal Lokeshwar,Ph.D.**, GRECC investigator, served as a reviewer on 3 study sections, including the NIH Molecular Targets and Cancer Therapeutics, NIH Cancer Health Disparities/Diversity in Basic Cancer Research, and on NIH Cell biology IRG.

Rakesh Singal, M.D. collaborated in the study entitled *Free Circulating DNA as a Biomarker of Prostate Cancer: Comparison of Quantitation Methods* published in Anticancer Research 33:4521-4530 (2013) Other collaborators included Kavitha Ramachandran, Carl G. Speer, Stephanie Fiddy, and Isildinha M. Reis.from University of Miami, Sylvester Comprehensive Cancer Center and Miami Veterans Affairs Medical Center, Miami, FL, U.S.A.



The aim of the study was to identify a simpler method of free circulating DNA (fcDNA) quantitation that may improve the specificity of the prostate cancer prostate-

specific antigen (PSA) screening test. Materials and Methods: The patient group consisted of 241 men with elevated PSA/abnormal digital rectal exam (DRE), undergoing prostate biopsy. Serum fcDNA levels were measured by UV absorbance and PicoGreen. Results were compared to previously published quantitative polymerase chain reaction (qPCR) data. It was found that levels of fcDNA measured by PicoGreen correlated well with those measured by qPCR (r=0.8552). In the patient group with PSA >4 to 10 ng/ml, those with fcDNA (PicoGreen) >53.1 ng/ml were at increased risk for prostate cancer compared to those with fcDNA  $\leq$ 53.1 ng/ml. Moreover, it was found that measuring fcDNA levels by PicoGreen does not compromise the negative predictive value, accuracy or specificity of the qPCR fcDNA test. Conclusion: If validated in larger studies, PicoGreen quantitation of fcDNA could serve as a simple method to aid in prostate cancer diagnosis.

# **RESEARCH SPOTLIGHT**

#### Geriatric Research, Education, and Clinical Center- GRECC



**Carlos Perez-Stable, Ph.D.** presented the study entitled *Mcl-1* protects prostate cancer cells from chemotherapy-induced *DNA damage* at the American Association for Cancer Research (AACR), Minority-Serving Institution (MSI) Faculty Scholar in Cancer Research Award annual meeting in San Diego, CA on April 5-9, 2014.

The same abstract was presented at the Florida Prostate Cancer Research Symposium in Lake Buena Vista, FL on March 21, 22, 2014.

Gaëtan Delcroix, Ph.D. presented a poster of his work entitled Enhancement of Parkinson's disease MIAMI cell therapy by pharmacologically active microcarriers: an in vivo and ex-vivo organotypic culture study at the the MIAMI 2014 Winter Symposium, Molecular Basis of Brain Disorders, on January 26, 2014 at the Hyatt Regency hotel. Authors /co-authors on the work are G.J.-R. Delcroix, E. Garbayo, N. Daviaud, L. Sindji, O. Thomas, C. Vanpouille-Box, C.N. Montero-Menei, P.C. Schiller.





Melvys Valledor, Ph.D. was invited to present a seminar on her work at the University of Massachusetts Worcester, MA, on January 30, 2014. The title of her presentation was *Recombineering in Human Cells*, with co-authors Drs. Paul Schiller and Rick Myers.



Scott D. Walter, MD

The VA National Patient Database contains a wealth of information about veterans' health, and is a useful tool for populationbased research. A team of researchers at the Miami VAMC Department of Ophthalmology, led by Drs. Anat Galor and Sarah Wellik, has explored the data in an effort to elucidate the role that glaucoma medications play in the development of dry eye symptoms. Contrary to conventional wisdom -that the preservatives in glaucoma medications are primarily responsible for causing dry eye symptoms -- the team found that

certain glaucoma medications differentially effect the development of dry eye symptoms. The team's preliminary results will be presented at the upcoming annual meeting of the American Society of Cataract and Refractive Surgery. The research poster, authored by second-year resident Dr. Scott Walter, was selected as one of the top 10 poster presentations submitted to the meeting by a resident or fellow.

# Honors & Awards

The following awardees are students from Dr. Herman S. Cheung's laboratory. Dr. Cheung is the James L. Knight Professor of Biomedical Engineering, Senior VA Research Career Scientist, Professor of Medicine and Orthopedic Surgery and Editor-in-Chief; Current Tissue Engineering.



Veronica Fortino, one of the PhD graduate Biomedical Engineering students, has been selected by the Lindau Nobel Laureate Meetings to participate in the 64<sup>th</sup> Lindau Nobel Laureate Meeting, to be held from June 29 to July 4, 2014, in Lindau, Germany. Only the 600 most qualified young researchers are given the opportunity to attend the Lindau Nobel Laureate Meetings.



Juan Kochen, an undergraduate biomedical engineering students, working at VAMC was selected as one of 25 students from over 1,000 applicants for the AMGEN Scholars Program for the summer of 2014 at MIT. Moreover, he was accepted into the Initiative for Maximizing Student Development (IMSD) program at University of Miami. This award was designed to expose Juan to research experiences with the expectation that he will pursue a PhD or MD/Ph.D.



Matthew Penna, another undergraduate biomedical engineering students in Dr. Cheung's lab, was awarded the highly prestigious Leadership Alliance Scholar Award to do summer research at Stanford University Medicine/Engineering Institute.

# **PUBLICATIONS**

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## Herman Cheung, Ph.D. and Research Team

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Submitted/Accepted for Publication:

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## Eva Widerström-Noga, DDS, PhD

Roger B. Fillingim, Stephen Bruehl, Robert H. Dworkin, Samuel F. Dworkin, John D. Loeser, Dennis C. Turk, Eva Widerstrom-Noga, Lesley Arnold, Robert Bennett, Robert R. Edwards, Roy Freeman, Jennifer Gewandter, Sharon Hertz, Marc Hochberg, Elliot Krane, Patrick W. Mantyh, John Markman, Tuhina Neogi, Richard Ohrbach, Judith A. Paice, Frank Porreca, Bob A. Rappaport, Shannon M. Smith, Thomas J. Smith, Mark D. Sullivan, G. Nicholas Verne, Ajay D. Wasan, and Ursula Wesselmann. *The ACTTION-American Pain Society Pain Taxonomy (AAPT): An Evidence-Based and Multidimensional Approach to Classifying Chronic Pain Conditions*. The Journal of Pain, Vol 15, No 3 (March), 2014: pp 241-249.

**E Widerstrom-Noga**, F Biering-Sørensen, TN Bryce, DD Cardenas, NB Finnerup, MP Jensen, JS Richards and PJ Siddall. <u>*The International Spinal Cord Injury Pain Basic Data Set</u> (<i>version 2.0*). <u>Spinal Cord</u> (2014), 1–5.</u>

#### The sequelae of our millennial war

Commentary by:

This year, a young veteran of the Afghanistan war- in treatment for posttraumatic stress disorder (PTSD), depression, and chronic pain in our medical center-killed himself. Friends posted an online memorial video. A combat buddy, viewing his own image in the memorial, disappeared from his college dormitory. Police found him and brought him to the Veterans Affairs

(VA) hospital, where he was admitted involuntarily with a first psychotic episode. These two young men carry a burden of psychiatric illness that bears both similarities and differences to that of their Vietnam or Gulf War era predecessors. Although each war fought during the past century afforded psychiatrists unique insights into the frequently devastating consequences of combat, the current Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) campaigns offer novel challenges. Approximately 1.6 million Americans have served in war since 2001. Approximately one third of these returning soldiers are experiencing symptoms of PTSD, depression, and/or traumatic brain injury (TBI), and comorbidity with alcohol misuse and interpersonal violence has been reported in about half of these cases (Thomas et al., 2010).



Daniella David, MD, Chief of Psychiatry Veterans Affairs Medical Center

Spencer Eth, MD, ACOS, Mental Health & Behavioral Sciences

The perils to our troops returning from Iraq and Afghanistan will not end when the last combat soldier comes home. Some of our millennial veterans will need long-term care for both neuropsychiatric and medical comorbidities. Recent studies demonstrate a growing appreciation of the complex roles of resilience, early life stress, and postdeployment social support in symptom formation, as well as the underappreciated phenomenon of posttraumatic growth (Gallaway et al., 2011). We are hopeful that these concepts will help us identify psychopathology early, develop preventive interventions, and deliver more effective treatments promptly for our wounded warriors, with the substantial promise of enhancing the quality of life and diminishing the risk for premature death. We owe our soldiers whose faces were marred by dust and sweat and blood nothing less. Read more.

# **RESEARCH TRIALS**

## Benign Prostatic Hyperplasia (BPH) Research Trial

BPH is one of the most common urological conditions in men. More than 50% of men in their sixties and as many as 90% of men in their seventies and eighties suffer from the symptoms of BPH. The purpose of the research study is to compare two types of treatment for **BPH:** prostate artery embolization (PAE) and transure thral resection of the prostate (TURP) and to evaluate improvement of symptoms. The use of PAE to treat BPH is investigational. TURP is considered the "gold" standard of care for the treatment of BPH. Click here for a copy of the full brochure.



## **Tear Film Study**



Anat Galor, MD MSPH, Staff Physician, Miami VAMC Assistant, Professor of Clinical Ophthalmology, Bascom Palmer Eye Institute

Anat Galor, M.D. and her research team are currently recruiting patients for a tear film study entitled *The scope of Dry Eye Syndrome in Veterans: Sub-Study 2, Pain Mechanism.* In addition to providing information to patients on the function of their tears, the study aims to evaluate the relationship between sensitivity of the skin and cornea and dry eye. Individuals with normal eye anatomy who are not using eye medications (artificial tears are acceptable) are being recruited. The study is a 1 day study and takes about 4 hours to complete. Patients are compensated \$50 for their time. Please contact Mireya Hernandez (<u>mireya.hernandez@va.gov</u>) or Dr. Galor (agalor@med.miami.edu) if interested in participating.

# FUNDING

## South Florida VA Foundation for Research & Education, Inc

#### **Grant Funding**

Sponsor:	Colgate
Project:	Effects of Ageism and Health Literacy on the periodontal Health Community Dwelling Veterans
PI:	Christie Hogue, DDS
Sponsor: Project: PI:	Jackson Healthcare AIMS for Veterans: Access Innovations for Medical-Legal Services for Veterans Panagiota Caralis, MD, JD
Sponsor: Project: PI:	Society of Urologic Chairpersons and Program Directors Feasibility of Desk-top simulation using Digital human Avatars to Teach Difficult communication Skills to Urology residents Allen Andrade, MD
Sponsor: Project: PI:	Department of Defense Brain Immune Interactions as the Basis of gulf war illness: Gulf war illness consortium Nancy Klimas, MD
Sponsor: Project: PI:	Contact Lens Association of Ophthalmologists Education and Research Foundation Targeted Lipidomic analysis of Tear Film Endocannabinoids Scott Walter, MD

#### **CRADA Funding**

Sponsor: Project: PI:	Podimetrics, Inc. Device CRADA In-Home Assessment of a Smart Foot Mat for Prevention of Diabetic Foot Ulcers Gary M. Rothenberg, DPM
Sponsor: Project:	Gilead Sciences, Inc. – Phase IIB CRADA A Phase 2b, Dose-Ranging, Randomized, Double-Blind, Placebo-Controlled Trial Evaluating the Safety and Efficacy of GS-6624, a Monoclonal Antibody Against Lysyl Oxidase-Like2 (LOXL2), in Subjects with Advanced Liver Fibrosis but not Cirrhosis Secondary to Non-Alcoholic Steatohepatitis (NASH) Protocol Number: GS-US-321-0105
PI:	Lennox Jeffers, MD
Sponsor:	Gilead Sciences, Inc. – Phase IIB CRADA
Project:	A Phase 2b, Dose-Ranging, Randomized, Double-Blind, Placebo-Controlled Trial Evaluating the Safety and Efficacy of GS-6624, a Monoclonal Antibody Against Lysyl Oxidase-Like2 (LOXL2), in Subjects with Compensated Cirrhosis Secondary to Non- Alcoholic Steatohepatitis (NASH) Protocol Number: GS-US-321-0106
PI	Lennox Jeffers, MD

**Nancy Klimas, M.D.** received a Notice of Intent to Award from the Department of Veterans Affairs for the project titled *Women vs. Men with GWI: Differenced in Computational Models and Therapeutic Targets.* 

# **EVENTS**

Making A Difference

VA Research Week is designed to call attention to the achievements of VA researchers and the role they play in providing high quality care for veterans and advancing medical science. It is an opportunity to educate veterans, our elected representatives, and others about research and its impact on treating and preventing disease and disability. This year's theme is **VA Research: Making a Difference**.

As part of the nationwide observance, the Miami VA Medical Center will conduct a special seminar on May 20. Ignacio Gaunaurd, PT, PhD, MSPT, who has worked extensively with the wounded veterans, will discuss what is ahead for the victims with amputations.

#### Miami VA Research Day May 20

For more information contact Isabel Perez at iperez4@med.miami.edu or Isabel.Perez1@va.gov.



### Miami VA R&D Newsletter

is a service of the Research Service Office at the Miami VA Healthcare System. To view past issues, visit <u>http://sfvafre.org/newsletter.php</u>

#### **Submissions**

Faculty and staff submissions can be e-mailed to the Office of Research Communications at <u>iperez4@med.miami.edu</u> or <u>Isabel.Perez1@va.gov</u>.

## Editor

#### **Isabel Perez**

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