

• ABSTRACTS FROM SCIENTIFIC FORUM •



ORAL PRESENTATIONS

FIRST PLACE AWARDEES

R-046 Understanding Specific Phobia: The Role of Physiological Responses. Dor Marie Arroyo, Gabriela García, Mohammed R Milad, Gregory Quirk, Karen G Martínez. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

There is increasing recognition that people with anxiety disorders show altered fear learning and extinction. Recent studies indicate that the physiological response in specific phobia (SP) subjects could be altered but depend on the predictability and nature of the stimuli (Dilger, 2003; Schueckendiek J, Weaving, 2010). Methodology: Seven healthy adults and seven SP subjects living in Puerto Rico (10 F and 4 M aged 21-57) were trained in an established fear conditioning and extinction paradigm (Milad et al., 2005), which assessed the skin conductance response (SCR) to pictures of a colored light associated with shock. Subjects were also given the STAI, BAI and the NEO personality inventory. Comparisons between the groups in psychological tests, baseline skin conductance and unconditioned response were done with t-test. Physiological res-

ponses were compared using repeated measures ANOVA. Results: While SP subjects presented a tendency of a higher baseline skin conductance ($t = -2.138, p = .054$) compared to healthy subjects, no statistically significant differences were found between the groups in fear conditioning and extinction. No statistical significant differences were found in the psychological tests between the two groups. Conclusion: Several studies have shown altered conditioning and extinction in subjects with panic disorder, social phobia, and post-traumatic stress disorder. The similarity of the physiological responses between SP and healthy subjects could point to the fact that different anxiety disorders show differences in fear responses which could lead to better assessment strategies.

R-092 Estudio Piloto: Impacto y Percepción del Acoso Escolar en la Participación Social en el Rol de Estudiantes en un grupo de Niños y Maestros Puertorriqueños. Nilmarí Cruz, Ann J. Berríos De Jesús, OTS, Viliana Morales Goyco, OTS, Hécmery Rivera Serrano, OTS, Lizette Flores Pabón, Ph.D, OTR/L, Carmen Rodríguez Delgado, PhD, OTR/L. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

La meta de este estudio piloto fue describir el impacto del acoso escolar en la participación social en el rol de estudiante de una muestra de 23 estudiantes y 13 maestros de escuela intermedia de dos escuelas privadas. La identificación de las características y tipos de acoso más comunes, el impacto en el rol de estudiante y la identificación de estrategias de manejo, fueron los objetivos del mismo. Se usaron dos instrumentos auto administrables: el Cuestionario sobre intimidación y maltrato entre estudiantes y el de maestros (Ortega y Mora, 1995) y dos instrumentos diseñados por las investigadoras. Se encontró que el 17.39% indicó haber maltratado a otros pocas veces y un 13.4% que indicó que sería capaz de maltratar a otros. Un 85% de los maestros reconoce que el acoso escolar impacta el desempeño de tareas escolares y un 46% expresó no estar preparados para resolver problemas de violencia sin ayuda de otros profesionales. Ambos grupos expresaron la necesidad de aumentar la participación activa en actividades extracurriculares. En conclusión, ambos grupos reconocieron que existe el acoso escolar en las escuelas, identificando la presencia de víctimas, agresores y espectadores. Además en el estudio se identificaron posibles factores de riesgo y protectivos que pueden influir en la presencia y manejo del acoso; por ejemplo los tipos de actividades extracurriculares y la espontaneidad en la participación de los estudiantes. Se concluye que el acoso escolar afecta la participación social y el rol de estudiante debido, posiblemente, a la limitación en la participación de los estudiantes en las actividades extracurriculares.

R-008 Anticancer properties of grape polyphenols: Inhibition of mTOR signaling and chemosensitization of anti-EGFR therapy. Linette Castillo-Pichardo, Suranganie Dharmawardhane. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

We recently reported that combined grape polyphenols resveratrol, quercetin, and catechin (RQC) at physiologically relevant concentrations induced apoptosis and inhibited breast cancer cell proliferation, cell cycle progression, migration, and primary mammary tumor growth and metastasis (Schlachterman et al., 2008. *J. Translat. Oncol.* 1:19-27; Castillo et al., 2009. *Clin. Exp. Met.* 26:505-516). Signaling via the Epidermal Growth Factor Receptor (EGFR) contributes to cancer progression, and is therefore, a common target for cancer therapy. However, development of resistance to EGFR therapy constitutes a major problem. Akt/mTOR signaling, a survival pathway downstream of EGFR, is often elevated in EGFR therapy-resistant cancers. We investigated the potential of grape polyphenols (RQC) to inhibit Akt/mTOR signaling and sensitize cancer cells to a common anti-EGFR therapeutic Gefitinib, using the Gefitinib resistant breast cancer cell line MDA-MB-231. Results show that a combination of RQC and Gefitinib decreases breast cancer cell proliferation to a greater extent than RQC or Gefitinib. Combined RQC and Gefitinib also inhibited mammary tumor growth in SCID mice to a greater extent than RQC or Gefitinib alone. RQC treatment of breast cancer cells inhibited Akt activity (activator of mTOR), increased AMPK activity (inhibitor of mTOR), and decreased p70S6kinase activity (a downstream effector of mTOR). Moreover, RQC inhibited Akt and p70S6kinase activities and increased AMPK activity, even in the presence of Gefitinib. These results indicate a chemosensitization role for RQC in Gefitinib resistant breast cancers.

SECOND PLACE AWARDEES

R-009 Preliminary Study of Ovarian Cancer Patients Evaluated at the Medical Sciences Campus. Jossette Axtmayer, Gianni Rodríguez-Ayala, Ronald López-Cepero, Erick Ramírez, Sharee Umierre, Ana Patricia Ortiz. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Ovarian cancer (OC) is the 5th and 9th leading cause of death among women in the US and PR, respectively. In PR, OC accounted for 3% of all female cancers between 1999 and 2003. The purpose was to describe the characteristics of OC in PR. Medical records from UDH were identified for patients who had been diagnosed previously with a pelvic mass. From 2006-2009, 49 records were initially evaluated, 23 had benign diagnosis. A descriptive, retrospective study was performed of 26 women. All histological variants were

considered. Data collected includes: age, surgical procedure performed, staging, tumor markers and family history of cancer. Mean age was 52 yrs (range 21-82). Of the 26 cases; 12 were epithelial tumors, 5 sex cord-stromal tumors, 5 borderline malignancy, 1 a germ cell tumor and 3 were 2ry metastatic disease. The most common procedures performed were ELAP, TAH, BSO and staging. All patients with epithelial histology received chemotherapy. Levels of CA125 were measured prior to surgery in all cases, 56% had elevated levels of this marker (39.1-10,000). A total of 62% had family history of cancer. In this report a similar incidence of epithelial tumors in our population to that in the US. In contrast, sex cord-stromal tumors were more frequent than germ cell tumors. The treatment modalities used and the markers taken into consideration for disease management are the same as in the US. This ongoing study will analyze other cases identified for the time period to better assess the characteristics of the disease in this population and elicit comparison between other mainland ethnics groups and Hispanics.

R-088 Ablation of NK-1 Receptor Expressing Neurons in the Rostral Ventromedial Medulla Attenuates Hyperalgesia. Johanna Rivera, Sergey Khasabov, Donald Simone. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico, University of Minnesota School of Dentistry

The rostral ventromedial medulla (RVM) is a brainstem area involved in the descending modulation of nociception at the spinal cord level. Substance P is a nociceptive mediator which binds to Neurokinin-1 receptor (NK-1R) and excites nociceptive neurons. NK-1Rs were identified in the RVM. We hypothesized, that these NK-1R expressing neurons are involved in descending facilitation of nociceptive transmission. Objective: Identify how selective elimination of NK-1R expressing neurons in the RVM affects hyperalgesia produced by intraplantar injection of capsaicin and Complete Freund's Adjuvant (CFA). Methods: Forty-seven rats were injected into the RVM with the specific toxin SSP-SAP or inactive Blank-SAP (control). Nociceptive mechanical withdrawal threshold and withdrawal frequency were determined using von Frey filaments apply to the plantar surfaces of the hind paws. Nociceptive withdrawal latency to heat was determined using radiant heat. Differences were determined with ANOVA ($p < 0.05$). Results: No statistically significant differences were observed between paw withdrawal threshold for mechanical and heat stimuli, before and after microinjection of SSP-SAP or Blank-SAP. However, pretreatment with SSP-SAP significantly reduced hyperalgesia produced by capsaicin or CFA. Conclusion: Neurons in the RVM with NK-1Rs do not modulate acute nociception but are involved in the development of acute hyperalgesia (cap-

saicin) and maintain long-lasting inflammatory hyperalgesia (CFA). Approved by IACUC.

R-047 Association Between Vitamin K and Insulin Sensitivity in Puerto Ricans with Metabolic Syndrome. Javier Anaya-González, Nancy Torres-Torres, Miguel Maldonado-Rodríguez. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

The metabolic syndrome (MetS) is associated with a state of increased insulin resistance that results in an increased risk of type 2 diabetes. Studies have suggested that higher levels of vitamin K are associated with better insulin sensitivity, although the mechanism is still unknown and its generalizability to high risk populations such as Hispanics and those with MetS has not been proven. This pilot study aims to evaluate whether this potential benefit of vitamin K is present in a group of Puerto Ricans with MetS and how this association can be modulated by gender and variances in genes associated to vitamin K. Participants are evaluated for blood pressure, anthropometric measures, clinical, demographic and dietary data, polymorphisms in genes associated to vitamin K, and levels of vitamin K, glucose, insulin and lipids. Preliminary results, with 70% of recruitment completed, shows a tendency for insulin sensitivity index (ISIO.120) to increase as serum vitamin K levels increase in a simple regression model, $\text{Log ISIO.120} = 0.1385 \times \text{Serum Vit K} + 0.2848$ ($R^2 = 0.6645$). We expect to complete recruitment process by January 2010 and evaluate in a multivariate regression model whether this protective effect of vitamin K in insulin sensitivity persists. Approved by MSC-IRB Protocol #6510110 (Oct. 20, 2009). Sponsored by NIH-NCRR (R25 RR17589 and SP20RR011126), NCMHD-NIH (5S21MD000242 and 5S21MD000138) and RCR II Grant #1P20 RR 11126.

R-064 Vitamin D levels and cognition in a Nursing Home in Puerto Rico. Ruth Martínez Camacho, Melisa R. Martínez Martí, Ivonne Jiménez Velázquez, Maribella González Viruet, Juan González Concepción, Gilberto Pérez Horta. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Hispanics, especially Puerto Ricans, are at high risk for vitamin D deficiency because people of dark-colored skin synthesize less vitamin D on exposure to sunlight than those with light-colored skin. Recent studies have related vitamin D levels with cognitive status and have suggested potential benefits of supplementation for preserving cognitive functions. Vitamin D has several roles in metabolism, such as calcium regulation, neuromuscular modulator, inflammation, and genes involved in cell proliferation, differentiation, and apoptosis. Thus, we evaluated the association of vitamin D status and sun exposure with cognition in Puerto Rican elders. Methods: A retrospective study

was conducted with 65 records. Vitamin D status, sun exposure, vitamin D supplementation and intake, and Mini Mental State Examination (MMSE) were evaluated. Data was examined with T-test and ANOVA. Results: Mean age was 80.27 (9.28) years; 40 (61.5%) were women. In the T-test analyses there were no differences between vitamin D levels among genders. A positive correlation ($p=0.012$) found between vitamin D levels and MMSE. Also, MMSE was higher among sun exposed participants (mean=23) versus not sun exposed participants (mean=8.73). Conclusions: Vitamin D deficiency was more significant among patients with lower MMSE. Whether vitamin D deficiency is a cause or a consequence of decreased cognitive function is unknown. Most likely risk factors include aging, low sun exposure and poor oral supplementation. Further investigation should be done whether vitamin D supplementation will improve cognitive status in Puerto Rican elders.

R-035 Dulce movimiento: un programa de actividad física para el manejo de la diabetes en confinados. Yiselly M. Vázquez-Guzmán, Carlos E. Rodríguez-Díaz, MPHE, Celys M. Cabrera-Santiago, MPHE, Jamil Jurado Sustache, MPH, Daisy M. Gely Rodríguez, MPHE. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Los esfuerzos de salud pública deben estar enfocados en las necesidades de las diversas poblaciones. Atender los asuntos de salud de poblaciones desventajadas representa uno de los principales valores de la salud pública, la justicia social. Las poblaciones confinadas se encuentran entre los grupos que requieren especial atención en términos de esfuerzos de promoción de la salud. Dichas poblaciones tienen necesidades de salud particulares y son afectadas por condiciones infecciosas, mentales y crónicas. En Puerto Rico, aproximadamente el 2.3% de la población correccional tiene un diagnóstico de diabetes, lo que la convierte en una de las condiciones de mayor prevalencia entre confinados. Dentro del escenario correccional puertorriqueño se incorporan esfuerzos de promoción de la salud, así como otros servicios relacionados con la atención de salud de los confinados. El programa de promoción de la salud Dulce movimiento, atendió las necesidades de un grupo de confinados diabéticos en términos del manejo de la condición a través de la actividad física y los estilos de vida saludables. Este programa se enfocó en el conocimiento, la práctica y la adopción de una rutina de actividad física para el manejo de la diabetes. La participación de los confinados en el mismo, les brindó la oportunidad de aprender, evaluar y modificar sus estilos de vida para mejorar su salud. Mediante este trabajo se pretende: (1) Describir el proceso de estudio de necesidades, implementación y evaluación de Dulce Movimiento e (2) Identificar los beneficios de la implementación de programas de promoción de la salud en escenarios correccionales.

R-068 Elevated aluminum blood levels among patients in a dialysis center, Puerto Rico, January 2010. Maridali De León, Catherine Chacin, Darielys Cordero, Luz Belinda Mojica, Brenda Rivera, John V. Rullán. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico, Department of Health & University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

In May 2010 Company X reported high aluminum blood levels in 70 (91%) of 77 patients at a dialysis center in Puerto Rico. Renal patients are at risk to develop: anemia, encephalopathy, and dementia from aluminum toxicity. The common causes for elevated levels are: dialysate solution; water source; medications; food and kitchen utensils. A case control study was conducted. Company X's centers were visited for inspection of equipment and processes (N=12). Data for aluminum levels during 2010 in: water source; reprocessed water; and patient's blood, was analyzed using Excel 2007 and EpiInfo 2000. Acid component of the dialysate at center 100 was prepared in an uncovered tank exposing corrosive fumes to the mixer's motor. Fifty percent of mixer acid motors exhibited corrosion. Motors were composed of aluminum alloys not intended for medical use or corrosive environments. The percentage of patients with high aluminum blood levels was higher than the 2.5% expected in 10 (83%) of 12 centers during January 2010 (N=980). The overall percentage of patients with high aluminum blood levels ($>20\mu\text{g/L}$) was 20%; among center 100, patients with high levels were 91%. Patients exposed to corrosive motors were more likely to have elevated blood aluminum levels than non-exposed (OR 5.04, CI-3.47-7.37). High levels among exposed patients were 5 times more likely than among non-exposed. Company X needs to establish standard operational procedures to select and maintain equipment. Aluminum blood screening should be more frequent than once a year.

THIRD PLACE AWARDEES

R-080 Negociación Sexual y Prácticas Sexuales en Parejas Viviendo con VIH Concordantes y Serodiscordantes. Rina Y. Matos, Conchita Santiago. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

El fenómeno del VIH/SIDA, crea un impacto a nivel personal, social, sexual, cultural, económico, y por ende una demanda creciente en herramientas analíticas más complejas. El tema de la negociación se ha trabajado como estrategia para el manejo de conflictos. Sin embargo, muy poco se ha estudiado en relación a la negociación sexual y prácticas sexuales asociado a parejas concordantes y serodiscordantes. Explorar las prácticas

sexuales, entre las parejas viviendo con VIH concordantes y serodiscordantes; Identificar que métodos de barreras son utilizados durante la relación sexual en las parejas viviendo con VIH concordantes o serodiscordantes; Describir las características de la negociación sexual que ocurre entre las parejas viviendo con VIH concordantes y seroconcordantes; Comparar la negociación sexual y prácticas sexuales de las parejas viviendo con VIH concordantes y serodiscordantes. Se utilizó un diseño no experimental descriptivo correlacional. La muestra consistió de 43 participantes viviendo con VIH. Se encontró que los/as participantes a pesar de conocer su estado seropositivo las parejas concordantes y serodiscordantes expresaron mantener una conducta de riesgo cuando sostenían relación sexual ya que no hacían uso del condón. Este estudio reflejo que entre las prácticas sexuales de riesgo la más utilizada por esta población fue el beso apasionado de lengua. Se reflejo que más del 40% continúa practicando conductas de riesgo relacionadas al uso de barreras de protección. Esta población utiliza una negociación sexual efectiva esto indica que practican positivamente la autoeficacia.

R-039 Knowledge and Attitudes Toward Organ Donation: A Survey Among Medical Students in Puerto Rico. Juan M. Márques-Lespier, Omar E. Soto Avilés, Nicole M. Ortiz Vega, María C. Sánchez. School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

The increasing demand of organ transplantation exceeds the organ donation rate. This discrepancy is challenging for the organ procurement agency and health professionals involved in the care of patients in dire need of organs. Research suggests that health care professionals' knowledge, attitudes and behaviors toward organ donation and transplantation are deciding variables in promoting organ donation. In Puerto Rico, there is no information regarding medical students' knowledge and/or attitudes on organ donation. Hence, we designed a study to evaluate student's knowledge and attitudes toward organ donation for transplantation. A total of 230 participants, 98 first year, 45 second and 87 third medical students, completed a study-specific survey. The instrument consisted of 55 questions; 10 assessed knowledge, and 20 assessed attitudes in organ and tissue donation. The remaining questions inquired about demographics and education. Results showed that 54.3% of medical students did not had an adequate knowledge, and that participants had a relatively positive attitude toward organ donation. Approximately 72% of participants had a favorable opinion towards organ donation. In addition, 40% of medical students had the intention to donate their organs but lacked a donor card. Only 30% were considering becoming donors but had not made a decision while 23% of the participants had an organ donor card. These findings suggest that medical students

in Puerto Rico have a positive attitude towards organ donation, however lack knowledge in the subject and have not taken the necessary measures to become an active donor.

R-160 pRIFLE Score Identifies Acute Kidney Injury and Predicts Mortality in Critically Ill Children: A Prospective Study. Yadira A Soler, Marta Suárez-Rivera, MD, Ricardo García-De Jesús, MD, Mónica Prieto, Mariely Nieves-Plaza. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Acute Kidney Injury (AKI) is associated with morbidity and mortality in children. The Risk, Injury, Failure, Loss and End-Stage Kidney (RIFLE) classification was created in adults to establish a uniform definition. A pediatric version, pRIFLE, was done to identify AKI in children. Our hypothesis is pRIFLE will predict morbidity and mortality of patients with AKI in a pediatric intensive care unit (PICU). A prospective cohort of 188 admissions to PICU were studied. Inclusion criteria: in PICU >24 hr, ages 0.1-21 years, no end-stage renal disease or renal transplant. Data was collected for 14 days, and pRIFLE was calculated with estimated creatinine clearance (CpRIFLE) and urine output (UpRIFLE). Bivariate analysis done using Mann-Whitney and chi-square tests for continuous and categorical variables. Binary logistic regression used to evaluate association between pRIFLE and mortality ($p < 0.05$). Incidence of AKI: 22.3%, of which 88% presented in first 72 hours of admission. AKI patients were younger, weighed less, had more inotropic support and diuretics ($p < 0.05$). Difference observed in length of stay (hLOS) between AKI and no-AKI ($p = 0.05$). No difference in gender, nephrotoxins, or mechanical ventilation observed ($p > 0.05$). In bivariate analysis, AKI defined by pRIFLE predicted mortality (OR 4.06, 95% CI: 1.42-11.59). UpRIFLE identified 14.3% of AKI vs. 85.7% identified by CpRIFLE ($p < 0.001$). In this cohort, AKI identified by pRIFLE predicted mortality. CpRIFLE identified more cases of AKI than UpRIFLE, so it could be a useful tool. pRIFLE score suggests increased morbidity as observed in longer hLOS, increased need of inotropics and diuretics.

R-055 Implicaciones para la Salud Pública de los cambios en la Estructura de Edad y Sexo de la Población de Puerto Rico. Alejandro D. Meléndez, Luz León López PhD. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Los cambios que ocurren en la estructura de edad y sexo de la población de un país representan un gran reto para su sistema de salud. El objetivo principal del presente estudio fue analizar los cambios ocurridos en la estructura de edad y sexo en Puerto Rico a partir de la década del 1950 y examinar que implicaciones pudieron tener los mismos para la Salud Pública. El

estudio utilizó como fuente principal los Censos de Población y Vivienda de Puerto Rico desde la década del 1950. El método fue uno de tipo descriptivo transversal. Los resultados indican un descenso considerable en la proporción de hombres. Para el 1950, en Puerto Rico la razón de masculinidad era de 101 hombres por cada 100 mujeres. En el año 2000, esta cifra había descendido a 91.9 hombres por cada 100 mujeres. Al presente apenas 6 municipios cuentan con una proporción mayor de féminas, dato que difiere considerablemente de lo observado a mediados del siglo XX donde 64 municipios mostraban un por ciento más alto de la población masculina. Por otro lado, a partir de 1990 la isla experimentó un envejecimiento acelerado de la población. Para la mitad del Siglo XX, Puerto Rico contaba con solo un 3.9 por ciento de población de 65 años o más. Esta cifra aumentó de manera significativa hasta alcanzar un 14.1 por ciento en la actualidad. La investigación concluye que Puerto Rico cuenta con una población vieja y un déficit de la población masculina. Esta radiografía poblacional representa un nuevo paradigma en la transición epidemiológica de Puerto Rico. La misma amerita de acciones concretas que brinden atención inmediata de parte de la comunidad salubrista.

R-015 Accumulation of Nuclear DNA Damage in Liver Tissue from APEX1 Haploinsufficient Mice During Aging. Ceidy Torres-Ortiz, Karina Acevedo-Torres, Christi A. Walter, Sylvette Ayala-Torres. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Apurinic/aprimidinic endonuclease 1 or Apex1, is a key enzyme in the process of base excision repair (BER), a process responsible for repairing the majority of the DNA lesions induced by reactive oxygen species (ROS). Repair of DNA lesions induced by ROS is important to human health since DNA damage has been linked to carcinogenesis. In vivo evidence suggests that DNA repair capacity declines with age and that Apex1 may be limiting in certain tissues. Studies using mice in which one copy of the APEX1 gene has been deleted (resulting in APEX1 haploinsufficiency or APEX1^{+/-} mice) show increased spontaneous mutations in liver. We hypothesize that this increased mutation frequency is due to age-dependent accumulation of DNA damage. We tested this hypothesis by determining the amount of DNA damage in a 6.9kb nuclear DNA (nDNA) fragment from liver tissue in three different age groups (6, 16 and 28 months) in wild type (WT) and APEX1^{+/-} mice. To detect DNA damage we applied a gene specific assay based on PCR that can detect a variety of DNA lesions such as abasic sites, strand breaks, and oxidized bases. Our results show that aging leads to increased nDNA lesions in the target nDNA sequence in both WT and Apex1^{+/-} mice. Moreover, we found that the 16-month-old Apex1^{+/-} mice had increased levels of nDNA damage as compared to aged matched WT mice (0.77 lesions/10kb/strand versus 0.35 lesions/10kb/strand, respec-

tively). We conclude that APEX1 haploinsufficiency leads to age-dependent accumulation of nDNA damage. Sponsored by SSC3GM08475902, 5R25GM061838-09, and G12RR03051.

POSTER PRESENTATIONS

FIRST PLACE AWARDEES

R-124 Expression and Purification of SV40 late viral protein VP4. Dorianmarie Vargas, Franco Smita Raghava, University of Massachusetts, Amherst, MA 01003

SV40 was the first mammalian virus sequenced more than 30 years ago. Its small bi-directional genome has evolved to optimize its limited protein-coding capacity. Little is known about the mechanism of this non-enveloped virus release from the host cell. The plasma membrane of host cells is unquestionably compromised during SV40 infection. This process appears to involve the timely insertion of soluble viral proteins into host cellular membranes rendering them permeable to large molecules. SV40 protein, VP4, was recently discovered in the lab, and it was found to be expressed at later times with a possible role in directing cell lysis. To investigate the role of this later expressed protein in viral release, VP4 was expressed and purified as a GST fusion (GST-VP4) from bacterial cells. The membrane disruptive activity of GST-VP4 was determined by the hemolysis assay. Purified GST-VP4 was found to efficiently disrupt the red blood cell membranes. Deleting the hydrophobic domain of VP4 drastically reduced the hemolytic activity, suggestive of a role for the hydrophobic domain in membrane lysis. Altogether, these results support a central role for VP4 in the disruption of cellular membranes. Supported by Summer Program for Undergraduate Research and Rise Program grant (R25 GM 59429-09; DVF). Funded by National Science Foundation Traineeship grant (NSF HRD 0450339; DVF) and National Institute of Health grant (AI078142; DNH).

R-268 Obesity associated risk factors among women living with HIV. Isaedmarie Febo, Vivian Tamayo, MD, Paola Piovanetti, Meredith Herrera, María Florián, Carlos Vergara. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Obesity is a public health problem that is associated with a significant risk of mortality and the morbidities associated to several chronic conditions. It is reaching epidemic proportions in the general population, but specific studies among people living with HIV/AIDS (PLWHA) are limited. During the past two decades, PLWHA have transitioned from wasting syndrome to healthier weights due to HAART. It is not clear if obesity can be explained based on HAART only. Our aim is to describe the prevalence and factors associated with the risk of obesity

among women living with HIV attending a longitudinal clinic (CEMI). This cross-sectional study included questionnaires, anthropometric measurements and gynecological examinations among 177 women > than 21 years. The mean age was 40.42 years (21-65 years), 70.1% reported a high school education or more. Half (48.9%) had legal marriage or consensual union. The majority (61.3%) of the women were overweight/obese (BMI > 25kg/m²). Among overweight/obese participants 46.7% are non-smokers, 52.3% were living with HIV for more than 11 years and 59.5% are receiving HAART. The overweight/obese women significantly reported more use of oral contraceptives (71.2% vs.28.8% p=0.38) and had more frequent abnormal cervical cytology (55.2% vs.44.8% p=0.046). The methods could represent patient or providers' choices. Obesity is as prevalent among women living with HIV as in the general population. Weight evaluation and management programs should be part of their health care. Obesity might adversely affect the long term complications of HIV and its therapy. Funded by NCRR-5-U54-RR19507-06

R-251 New suicide modalities: The Use of Helium as an Oxygen Displacement Agent. Jorge G. Billoch-Lima, Darío Sanabria-Bellasai, Irma Rivera-Diez. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

In statistical terms, suicide (defined as the act of voluntarily taking his/her own life) in Puerto Rico has demonstrated a relatively stable trend during the last decade, shadowing the trend in the United States. Although the methods by which the act is performed have not varied much, new worrisome tendencies have been described in the literature. Suicide by hanging is the most common method used in Puerto Rico (both men and women) and the second most common in the United States. While the use of a plastic bag around the head as a suicide tool had been described for some time before, its practice was boosted in 1991 after the publication of the book "Final Exit: The Practicalities of Self-Deliverance and Assisted Suicide for the Dying". Directed towards terminally ill patients, the book presented multiple mechanisms for an honorable death, including, in full detail, the "Exit bag" mechanism. In 2002, the third edition of the book included a chapter on the utilization of inert gases as a faster way to reach their objective. Inert gases (argon, radon, helium) accelerate the death by effectively displacing or substituting the oxygen being aspirated, and depriving the body (specially the brain) from it. Only twenty suicide cases using this methodology have been reported in the international scientific literature. Since helium is seldom searched for in the toxicological analysis of a forensic autopsy, it has been theorized that the real incidence may be exponentially higher, maybe falling in the thousands. We describe the first known case in Puerto Rico of suicide by asphyxia utilizing this method.

R-223 Association study of APOE polymorphisms and Autism in Puerto Rican Children. Jocelyn Montalvo Ortiz, Rafael Oliveras, PsyD, Laura Deliz, PsyD, Summer Acevedo, PhD, Madeline Collazo, BS, Xamaytha Negroni, MD. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Autism Spectrum Disorders (ASD) is a group of neurodevelopmental disorders characterized by stereotypic behaviors with social and communicative deficiencies. Genomic scans have identified the 19p13.2 loci as having possible linkage with ASD. Within this region is the apolipoprotein E (APOE) gene, which codes for a protein, whose different isoforms affect neuronal growth and development and has been associated with neurodegenerative disorders. Objective: To test the hypothesis of association between the APOE gene variants (E2, E3, E4) and ASD in a cohort of Puerto Rican children. Methods: A case-control study was performed with 50 patients, aged 3-12 year-old, diagnosed with ASD and 55 unrelated age-matched control subjects. Amplification of the APOE gene was carried out by PCR and the polymorphic variants were identified by restriction fragment length polymorphism. Results: We found no significant difference in allele frequency between autistic (4%E2, 91%E3, 5%E4) and control (4%E2, 85%E3, 11%E4) children ($\chi^2=3.69$, $P=0.15$). However, we did find a significant difference for genotype frequency with autistic children (8%E2/E3, 86%E3/E3, 6%E3/E4) showing a lower frequency of the E3/E4 genotype than controls (7%E2/E3, 71%E3/E3, 22%E3/E4); ($\chi^2=17.5$, $P=0.0002$). Conclusions: These results support the hypothesis of association between genotype, based on the APOE variants, and autism in our cohort of Puerto Rican children. In particular, significant underrepresentation of the E3/E4 genotype was observed in the group of autistic subjects, supporting the possible involvement of APOE in the development of autism.

R-177 Factors Associated to the Success of Cryotherapy for the Treatment of CIN1 in HIV Infected Women. Yaminés Alifonso, Carmen Zorilla, Vivian Tamayo, Damaris Rodríguez, Carmen Vélez. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Cervical dysplasia, specifically CIN 1, is common among HIV infected women, with high recurrence rates after any treatment modality. The objective of this study was to determine factors associated with short term success of cryotherapy as treatment for CIN 1 in this population. Charts at the Maternal-Infant Studies Center (CEMI), a clinic that manages HIV infected women, were reviewed. We identified 72 patients with histologically confirmed CIN 1 treated with cryotherapy. Cases (n=23), defined as subjects with abnor-

mal cytology within a year of therapy were compared with controls (n=49), subjects with normal cytology after therapy. The variables analyzed in relation to outcome were CD4 counts, use of HAART, viral load and past treatment(s) for dysplasia. Of all the subjects 70% had a normal follow up cytology. Mean CD4 were similar between cases (319) and controls (389). A lower proportion of subjects with CD4 counts <200 was found in the control group (29% v 43% in cases) and more patients in this group had CD4 > 500 when compared to cases (39% v 17%). There was no difference between groups in use of HAART (70% v 79%). Yet, 50% of controls had undetectable viral load, while only 35% of the cases achieved virological suppression. Finally, 52% of the cases had a past history of previous treatment(s) for dysplasia, while only 29% of the controls had been previously treated. The success of cryotherapy for the treatment of CIN 1 in HIV infected women is related to higher CD4 counts, proper virological suppression and no previous treatment(s) for dysplasia.

R-136 Nesidioblastosis with Concurrent Pancreatic Intraepithelial Neoplasia in an Adult Patient with Hyperinsulinemic Hypoglycemia. Emmanuel Agosto-Arroyo, Carmen González-Keelan, María Marcos-Martínez, William Méndez-Lattadi. School of Medicine University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Persistent hyperinsulinemic hypoglycemia, commonly known as nesidioblastosis, is the most common cause of severe, prolonged neonatal hypoglycemia. This disease is characterized by focal or diffuse abnormalities of the islets of Langerhans. This is the case of a 38 year old female patient with history of persistent hypoglycemia, showing elevated insulin levels. Although an abdominal Computer Tomography scan showed no evidence of pancreatic lesions, the clinical impression was an insulinoma. A distal partial pancreatectomy was then performed. The pathologic macroscopic examination revealed a homogeneously lobulated pancreatic tissue without evidence of a mass. The microscopic examination revealed irregular islets of Langerhans with variation in shape and size, ductuloinsular complexes, septal islets and an increase in endocrine cell aggregates randomly distributed throughout the pancreatic tissue (nesidiodyplasia). These findings confirmed the diagnosis of nesidioblastosis. Furthermore, atypical proliferative changes were present within the ductal epithelium, including mucinous metaplasia with slight nuclear stratification at the basal aspect of the epithelium, consistent with a pancreatic intraepithelial neoplasia (PanIN) grade 1B. Nesidioblastosis is an uncommon cause of hyperinsulinemic hypoglycemia in adults and has been described in the literature in only a small series of patients. Nevertheless, no articles have been found in the literature describing nesidioblastosis in association with PanIN.

R-221 Internet-based survey as a tool to conduct HPV knowledge research among health care students in Puerto Rico. Ambar Y. Rivera, Juan R. Barrón Alemañy, BS, Lisa M. Carbonell Lampe, BS, Ana P. Ortiz Martínez, MPH, Ph.D, Sharee A. Umpierre, MD. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Rationale: Internet-based surveys have been recently identified as a reliable tool in health related research studies. Having the internet as a widely popular source for research in the 21st century, more information is needed to measure its suitability and adaptability among the Hispanic health care community in Puerto Rico. Objectives: To determine the participation rates in an internet-based survey of HPV knowledge among health care students from the University of Puerto Rico, Medical Sciences Campus; and to determine if participation rates differ by gender, age and study discipline. Methodology: An internet-based survey containing a 23-item questionnaire of HPV and cervical cancer will be distributed in at least 600 male and female students currently enrolled in any of the health care professional schools in the University of Puerto Rico, Medical Sciences Campus and will be emailed via the institutional email account beginning December 2010 until March 2011. Outcomes: From the findings of this study it will be expected to use descriptive statistics to describe the overall participation rates for the study. Bivariate analysis will be used to determine if participation rates differ by age, gender and study discipline. Future Directions: It might be expected that gender and discipline-specific approach needs to be considered when implementing internet-based surveys among health care students. Future discussion for this study will report technical and methodological factors that are important to consider in order to make this tool effective. Funding: None. Approved by IRB: Protocol 1050310 (11/11/2010 – 11/10/2011)

R-214 Differential Expression and Immunolocalization of FhFAMeT-like from Newly Excysted Juveniles and Adults Stages of Fasciola hepatica. José F. Gaudier, Kimberly Cabán-Hernández. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

The parasitic liver fluke *Fasciola hepatica* causes an estimated annual deficit of \$2 billion to the global livestock industry and is also emerging as an increasingly important zoonotic pathogen. Liver fluke is acquired following the ingestion of vegetation contaminated by the parasite metacercariae, which excyst in the duodenum. The newly excysted juveniles (NEJs) penetrate the intestinal wall and migrate to the liver. The invading parasites enter the liver bile 7 weeks after infection, become adults flukes and release eggs, which pass through with the

host feces to continue the lifecycle. The cost of treatment and the emergence of drug resistance suggest a need to identify potential protein targets for the development of sustainable strategies such as vaccination or chemotherapy. By searching a cDNA library of adult fluke using a rabbit serum with 4 wk of infection we isolated a cDNA encoding a 17kDa protein belonging to the *F. hepatica* farnesoic acid O-methyltransferase-like protein family (FhFAMeT). Here we demonstrated by qPCR that FhFAMeT is significantly upregulated in the NEJs and adult stages compared to the miracidium stage. Western blot analysis using a rabbit anti-FhFAMeT IgG antibody revealed the presence of the typical 17kDa polypeptide in soluble adult fluke extracts. Immunohistochemistry analysis revealed that FhFAMeT is expressed within the gut and the tegument of NEJs and adult fluke. Its specific localizations and early expression suggest that this protein could have a role in the nutrition and the immune evasion mechanisms of parasite. Funding; NIH Grant # S06-GM008224, G12-RR-03051 and 1G11HD046326.

SECOND PLACE AWARDEES

R-188 Kappa opioid receptors expression in brain reward areas of drug naive and cocaine treated female rats. Marietta N. Fratelli Santana, Anabel Puig Ramos, Joyce M. Vélez, Annabell C. Segarra. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Activation of kappa opioid receptors (KOPr) diminishes cocaine-induced addictive behaviors in rats. We investigated the effects of estradiol and/or cocaine on KOPr expression in the prefrontal cortex (PFC), nucleus accumbens (Nac), hippocampus (HIP) and ventral tegmental area (VTA) using Western Blot analysis. Rats were ovariectomized, half received implants filled with estradiol benzoate (OVX-EB); the others, empty implants (OVX). A week later, animals were injected for 5 consecutive days, and on day 13 with either saline or cocaine. An hour later, animals were sacrificed and the brains removed. We observed an increase in KOPr expression in the PFC from cocaine treated animals independent of estradiol. In Nac and HIP, there was no effect in KOPr expression. Interestingly, OVX-EB rats showed lower expression of KOPr in the VTA than OVX rats. These data demonstrate that the effect of estradiol and/or cocaine in KOPr expression in female rats is region dependent. A lower expression of KOPr in the VTA in OVX-EB rats suggests a possible mechanism by which estradiol regulates the development of cocaine-induced behavioral sensitization in female rats. A better understanding of cocaine-induced changes in the expression of KOPr may contribute to the development of better pharmacotherapy to treat addiction.

R-085 Correlation between temporal miRNA profile during 4NQO-induced tongue carcinogenesis and histopathological abnormalities. Laurivette Mosquera, Augusto Elías, Nadarajah Vigneswaren. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Oral squamous cell carcinomas (OSCC) account for 40% of all head and neck cancers in the USA. Despite recent diagnostic and therapeutic advances, the 5-year survival rate for OSCC remained less than 50% over the last 50 years. PR population, specially men, is among the top countries with the highest incidence and mortality rate from laryngeal and oral cancers, most commonly being squamous cell carcinoma. Hence, early diagnosis and molecular targeted chemoprevention represent the best methods to improve survival in OSCC patients. The aim of the present work was to examine the miRNA expression patterns in a mouse model of tongue carcinogenesis and correlate them with the clinical, histopathologic and molecular abnormalities. Methodology CBA mice were given 4NQO in drinking water to induce tongue carcinogenesis. Histopathology and miRNA profiling using RT2 miRNA PCR Array System were done at an early (7weeks, mild to moderate displasia) and later stages of carcinogenesis (12 and 17 week, moderate to severe displasia). Results: Five common miRNAs (miR-196a, miR-142-5p, miR-96, miR-141, and miR-218) were upregulated throughout the progressive stages OSCC development, while several miRNAs expression was characteristic of each time point individually. Conclusion: A possible correlation exists between the altered expression of these particular miRNAs and the development and progression of OSCC.

R-181 Epidemiology of gun carrying among Puerto Rican students: prevalence, socio-demographics and risk factors. Zoé Rodríguez Alamo, Paola Piovanetti Fiol, Mary Vanellys Díaz Santana. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Over the past decade, youth violence has received increasing attention as a major public health issue because of its rising incidence. During 2007, the Youth Risk Behaviors Survey has shown that almost 20% of high school students reported carrying a weapon. In 2008, 34.5% of the societal negligence committed by minors in Puerto Rico was associated with weapons. This study estimates the prevalence of gun carrying and identifies possible risk and protective factors associated with this dangerous practice in the Puerto Rican youth population. This is a secondary analysis of the national school-based survey 'Consulta Juvenil VII'. This survey is design to examine the risk and protective factors

of substance use and other behavioral problems in Puerto Rican students. A total of 15,558 students participated in this survey. "Consulta Juvenil VII" used a self-administered questionnaire that was translated and adapted from the "Student Survey of Risk and Protective Factors and Prevalence of Alcohol, Tobacco & other drug use" of Catalano and Hawkins; et. Al. (2006). The overall prevalence of carrying a gun was (2.4%). Males were more likely to have carried a gun than females (4.3% vs 0.7%). Logistic regression models reveal that male gender, smoking, illegal drug use, GPA, being suspended from school and friends carrying a gun were positively associated with the prevalence of students carrying guns. New initiatives can use variables associated with carrying guns to target prevention and intervention programs to improve safety in adolescent and reduce youth violence. AMSCA funding. Approved by IRB (# 2006-03, Sept. 26,2006).

R-267 Blockade of Ephexin phosphorylation with PP2 promotes locomotor activity after spinal cord injury in rats. Odrick R. Rosas, Aranza I. Torrado, Ana E. Rodríguez, José M. Santiago. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Spinal cord injury (SCI) is a devastated condition, which affects over 8,000 Americans every year. The spinal cord has the ability to regenerate but the microenvironment generated after trauma avoid that capacity. Inhibitory proteins generate this microenvironment; in which Ephexin (a guanine nucleotide exchange factor) is one of them. Ephexin activation is mediated through Src phosphorylation in the amino acid Tyr-87 and this promotes axonal growth cone retraction through Rho activation. Results demonstrated that SCI, using the NYU impactor device, triggers a significant up-regulation of Ephexin expression at 2, 4 and 7 days post-injury (DPI), and its activation remain until 14 DPI ($p < 0.05$). Blockade of Ephexin phosphorylation with PP2 (Src inhibitor) diminished Ephexin phosphorylation and its activation ($p < 0.05$). Therefore, the hypothesis tested is that: if a permissive environment is generated by reducing Ephexin phosphorylation or activation after SCI, then an improvement in axonal regeneration and functional locomotor activity will be observed. The experiments used to demonstrate this hypothesis were behavioral assays (BBB & grid walking), physiological test (TcMMEPs) and anatomical studies. Results obtained demonstrated that blockade of ephexin activation increase locomotor activity at 14 and 28 DPI ($p < 0.05$), suggesting a role of this protein in the pathophysiology generated after SCI. MBRS-RISE (R25GM061838), MBRS-SCORE (2SO66M8224), RCM1 (G12RR03051), SNRP (NS39405), M-RISP (532851) and the Associate Deanship of Biomedical Sciences at the UPR School of Medicine

THIRD PLACE AWARDEES

R-030 **A Computational Simulation of a Radiotherapy Clinic Procedure: Total Body Irradiation.**

Verónica De La Rosa, Ernesto Esteban, Camille García. University of Puerto Rico, Humacao, Puerto Rico

Leukemia, non-Hodgkin's lymphoma and neuroblastoma patients prior to bone marrow transplants may be subject to a clinical radiotherapy procedure called total body irradiation (TBI). To mimic a TBI procedure, we modified the Jones model of bone marrow transplant cell kinetics by adding mutant and cancerous cell compartments. The modified Jones model is mathematically described by a set of $n + 4$ differential equations, where n is the number of mutations before a normal cell becomes a cancerous cell. Next, a computational simulation of a standard TBI radiotherapy treatment (total dose of 1320 cGy fractionated over four days) was carried out. Since a TBI procedure requires a high radiation dose rate, sub-lethal repair and repopulation were neglected. In this case, the proposed Jones model could be solved in a closed form. Exact solutions for n mutations have been found, and presented explicitly for the case $n=2$. After a graphical analysis, we found that the expected results of TBI treatment can be mimicked by the proposed biomathematical model. Therefore, the computational simulation (including the prior effects of chemotherapy procedure) suggests that the TBI standard treatment, is indeed correct, and it provides the needed conditioning treatment prior to bone marrow transplant.

R-082 **Tissue Microarray Immunohistochemical Expression Analysis of CD147, CD44var, Glut-1, p63 and Cyclin D1 in human tongue squamous cell carcinomas: Correlation with clinicopathologic parameters and prognosis.** José A. Morales. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico, University of Texas, M.D. Anderson Cancer Center

Objective: The aim of this study was to use high-throughput tissue microarray (TMA) technology to characterize the altered expression patterns of tumor cell proliferation, adhesion, invasion and hypoxia related biomarkers in human tongue carcinomas and to correlate these biomarkers expression levels with clinicopathologic features and patients outcome to determine their prognostic value. Methods: The method used for analyzing the following biomarkers was tissue microarray immunohistochemistry. Before staining, all samples had been confirmed by a pathologist during routine clinical diagnosis, both instantaneous sections after embEd.Ding. Histopathologic examination was conducted after hematoxylin and eosin staining. We co-evaluated the expression levels of p63,

Ki67, CD147, GLUT1, CD44var and Cyclin D1 in tongue carcinomas. Results: In the present study the expression of Ki-67, P63, Cyclin D1 proved to assimilate results of past experiments; we obtained positive nuclei stain in 98% of our TMA-1 and TMA-2. For CD147, CD44 and Glut-1 we obtained 100% expression in the tongue squamous cell carcinoma tissues TMA-1 and TMA-2. Conclusion: This confirms the roles of each biomarker in cancerous cell activity. This study successfully optimizes the immunohistochemical procedure of TMA staining using the mentioned biomarkers and confirms past studies of the expression and over expression of these biomarkers use to identify cell proliferative activity, tumor progression, tumor metastasis, tumor hypoxia and rapid cell growth. Approved by IRB.

R-206 **Use of supplements in Puerto Rican older adults residing in an elderly Project.** Enid J. Olivera, Dr. Cristina Palacios Alzuru. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Supplement use is highly recommended in the elderly because it complements the diet and ensures that nutrient requirements are met. Objective: This research aimed to identify the supplements use profile in older adults residing in the elderly project Comunidad del Retiro in San Juan, Puerto Rico. Methods: This was a cross-sectional exploratory study in a convenience sample of 100 subjects residing in this elderly facility. The data was collected using a previously validated questionnaire. The questionnaire had four components: (I) Demographic information, (II) Use of vitamins and minerals, (III) Use of other supplements, and (IV) Chronic diseases history and the use of prescription and OTC drugs. Results: In this analysis, 63% of the subjects were female and 37% were male. We found that 67% of the subjects never used multivitamins while only 2% used it weekly and 31% used it daily; 11% used B vitamins or B12 daily; 18% used calcium and 16% vitamin D every day; only 6% used vitamin C and 14% used Omega 3 daily. Non-vitamin and non-mineral supplements use was very low. These frequencies are much lower compared to studies in similar populations in the US. Conclusions: The use of supplements in this group of Puerto Rican elders is low. This could potentially lead to nutrient deficiencies if food intake is not adequate. Protocol: A4540310

R-196 **Insights into the Glutathione S-transferase Gene in Plasmodium berghei.** Emilee E. Colón-Lorenzo, Adelfa E. Serrano, Ricardo González-Méndez. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

Malaria is a global health problem caused by Plasmodium parasites. The emergence of multidrug resistant parasites is a ma-

major contributor to the continued spread of the disease. A better understanding of parasite development and the mechanisms responsible for drug resistance will help in the design of novel antimalarials. Our aim is to elucidate the biological role of *P. berghei* glutathione S-transferase and to determine its potential as a drug target. Glutathione S-transferases (GSTs) are a family of detoxification enzymes that conjugate glutathione to toxic compounds. *Plasmodium* spp. possess only one GST which we previously classified into the sigma class. Our hypothesis is that disruption of *pbgst* will interfere with parasite development, supporting its potential as a drug target. A knockout vector was designed to disrupt the *pbgst* genomic locus by double crossover recombination. Preliminary results suggest that this gene is

essential due to the fact that no mutant parasites were detected after multiple transfections. A new disruption construct will be used to confirm if *pbGST* is indispensable for asexual blood stage development. Additionally, this gene was sequenced and a three-dimensional model of this enzyme was predicted using the PHYRE server in order to develop alternate strategies to study its role. This work will contribute to a comprehensive understanding of the function of *pbgst* in parasite development, possibly leading to novel strategies to control malaria. Supported by NIGMS/MBRS award GM08224 and the RCMI award G12RR03051. ECL is supported by the ASM Robert D. Watkins Graduate Research Fellowship award.

• CORRECTIONS •

Fares Y, Younes M, Kanj A, Barnes PR, Muñiz J. Multicentric Glioma. *P R Health Sci J.* 2009 Mar; 28(1):75-9.

The manuscript title was incomplete. The correct title is "Multicentric Glioma: Problems & Interpretations". The manuscript was incorrectly published as a case report instead of an original article. We regret the errors; these have been corrected in the online version.