The Third Puerto Rico Physiological Society (PRPS) Annual Meeting took place at the University of Puerto Rico (UPR) Medical Sciences Campus (MSC) in San Juan, PR on February 8, 2013. Dr. Jorge D. Miranda, from the UPR-MSC and past-President, organized the event with the support of the Ponce School of Medicine and Universidad Central del Caribe School of Medicine. The main topic of the meeting was on Mitochondrial Dysfunction and Disease, with speakers from Puerto Rico and the USA mainland.

The Third Annual Congress of Physiological Sciences gathered faculty, postdoctoral fellows, researchers, graduate and undergraduate students interested in mitochondria and the physiological sciences. Over 130 participants attended the meeting coming from the three major medical schools (UPR-MSC, Ponce School of Medicine & UCC School of Medicine), as well as from the UPR-Rio Piedras, UPR-Bayamón, UPR-Carolina Campuses, Universidad del Este, Interamerican University, National University de Cuyo-Argentina, Children’s Hospital of Philadelphia and the Veterans Hospital. The group was divided into 36 faculty and 94 postdoctoral fellows, laboratory technicians, graduate and undergraduate students.

The meeting began at 7:45am with a continental breakfast followed by a welcome message at 9:00am from Dr. Walter Silva, Associate Vice-President of Science & Technology from the University of Puerto Rico, then by Pedro J. Santiago-Borrero, acting Dean of the UPR-School of Medicine and finally, some
introductory remarks, by Jorge D. Miranda, President of the PRPS and Associate Dean of Biomedical Sciences, UPR-School of Medicine.

Dr. Paul S. Brookes, from the University of Rochester Medical Center in NY, started the conference with a seminar entitled “Cardioprotection by Potassium Channels-Mitochondrial or Neuronal?” His seminar set the topics and themes to be covered by the speakers in the Congress.

From the University of Puerto Rico Medical Sciences Campus-Physiology Department, Dr. Sabzali Javadov talked about “Mitochondrial permeability transitions: nexus of stress in cardiac cells”. Then, Dr. Carlos Torres from the UPR-MSC discussed his research about “Mitochondrial DNA Repair and Carcinogenesis: A New Paradigm”. This talk served as an introduction to Dr. Douglas Wallace seminar.

Dr. Wallace, from the University of Pennsylvania, presented his work about “A Mitochondrial & Bioenergetic Etiology of Neurodegenerative & Metabolic Diseases” to an audience of over 140 scientists and clinicians, that practically filled the amphitheater.

The poster session was after the lunch and each of the 18 students (graduate and undergraduate) presented their work which was evaluated by at least 3 judges on the overall quality of the data and presentations.
In the afternoon, from the University of Florida Gainesville, Dr. Scott K. Powers talked about “Exercising Mitochondrial For Cardioprotection”. A significant group of students and faculty from the Exercise Physiology Program from the UPR-Rio Piedras Campus attended this seminar and this event served to join both programs for future activities. This seminar was followed by the President report from Dr. Jorge D. Miranda (UPR-School of Medicine) that discussed the activities performed by the Puerto Rico Physiological Society during this past year.

Dr. Miranda explained the outreach activities performed as one of the missions of the Chapter, to create awareness and interest about Physiology among students and teachers in elementary, intermediate and high schools (further details at the end of this report). The main idea is to generate in these students an interest in the field of Physiology and for them to consider Physiology as an important career option. Finally, Dr. Miranda recognized the participation of the speakers in the research forum and presented the winners of the poster sessions.
Ms. Raisa Loun from Ponce School of Medicine presented her work entitled “HIV Nef expression in rat hippocampus induces systemic inflammation and gastrointestinal pathology” (Advisor: Dr. Rick Noel) and she won the Dr. Peter Lauf and Norma C. Adragna Travel Award with $1,000 to attend the Experimental Biology Meeting 2013. In addition, three students received a cash award for their research projects to help present them at the EB 2013 (1st place: Namyr Martínez from the UPR-School of Medicine with a research project entitled “Caveolin-1 supports the P2Y2 receptor signaling” (Advisor: Dr. Walter Silva); 2nd place: María C. Velásquez-Martínez from the UPR-School of Medicine with her project entitled “Alpha-1 adrenoreceptors modulate GABA release onto Ventral Tegmental Area Dopamine Neurons” Advisor: Carlos Jiménez) and the 3rd place: Mónica I. Quiñones from the Interamerican University with her project entitled “Sub-cellular distribution patterns of P2Y2 Nucleotide receptor and caveolin-1 using fluorescent chimeric proteins” (Advisor: Walter Silva).

The Congress concluded with the election of the Executive Committee, being Dr. Caroline Appleyard, from Ponce School of Medicine, nominated for President of the Chapter. Dr. Guido Santacana from the UPR-Medical Sciences Campus accepted his nomination as Vice-President and Dr. Sylvette Ayala from the UPR-MSC accepted her position as Secretary/Treasurer of the PRPS. The
members in the auditorium voted, accepted and supported the nominations for the new Executive Committee. The new councilors are Dr. Amelia Rivera from UCC, Dr. José Santiago from the UPR-Carolina Campus, Abigail Ruiz (Graduate Student) from Ponce School of Medicine and Dr. Jorge D. Miranda, past-President of PRPS.

Dr. Miranda thanked the organizing committee, sponsors and graduate students for their support in the organization and success of these activities. The meeting concluded at 4:00pm, with a formal dinner for the invited speakers and the Executive Committee.

During the last year, our chapter also focused on outreach activities in the different municipalities of Puerto Rico. This year we decided to visit several schools to impact more students around Puerto Rico, including not only those in the metropolitan area, but also in regions located in the East-side of Puerto Rico (Carolina), in the South-side (municipality of Ponce) and in the South-central side (municipality of Coamo). In addition, we were contacted by a regional supervisor of the Department of Education and performed a centralized outreach activity for schools located in the municipalities of Guaynabo, Bayamón, Trujillo Alto, San Juan and Carolina.

In contrast to last year, we impacted students from elementary, intermediate and high school level. As a result, over 180 students and more than 15 teachers benefited from our outreach activities.
The outreach activities were mainly organized by the graduate students, under the guidance of Dr. José O. García, with each activity divided into four or five main sections: 1) general presentation by Dr. Jorge D. Miranda (President) or Dr. Caroline Appleyard (Vice-President) about What is Physiology? How to study it? Where to study Physiology?, etc…, 2) Cardiovascular Physiology activities (how to measure your pulse?, how to determine your blood pressure?, how an EKG works?), 3) Nervous system and how the drugs work (mouse party website), 4) Respiratory Physiology activities (use of a water bottle to simulate a lung and how it will be affected by a pneumothorax) and 5) demonstrations of human hearts, lungs and brains.

These activities promoted the dissemination of Physiology as an alternative field of study and educated the new generation of students about the wonders of scientific research. We are planning to develop a short video with information about Physiology (approximately 8 minutes) and the types of research performed on the Island (1 minute capsules of Physiologists talking...
about their research). This information will be distributed to High Schools around Puerto Rico.

The success of these activities (Congress and outreach) were due to the following sponsors: University of Puerto Rico Central Administration, University of Puerto Rico Medical Sciences Campus (MSC), Ponce School of Medicine, Universidad Central y del Caribe (UCC) School of Medicine, UPR-School of Medicine, UPR-Division of Biomedical Sciences, UPR-MSC and Ponce School of Medicine-MBRS/RISE Programs, UPR-MSC and UCC-School of Medicine RCMI Programs and the American Physiological Society (APS).

Membership

At the moment we have approximately 125 members in our chapter. Included in this group are regular and associate members (15 high school students). Among the regular members, we have 36 faculty, 17 postdoctoral fellows/residents, and 58 graduate and undergraduate students from the main academic institutions of Puerto Rico.