The 35th Annual PSBMB Convention: A Resounding Call for Greater Collaboration in Biosciences

Scientists hobnobbed to discuss their research and form vital collaborations in this year's conference

by Karen Manalastas

Transdisciplinary research was the theme of the 35th Annual Convention of the Philippine Society for Biochemistry and Molecular Biology (PSBMB). Entitled *"Transdisciplinary Research: Pushing the Frontiers of the Biosciences"*, the conference was hosted by the National Institute of Molecular Biology and Biotechnology, University of the Philippines Diliman, on the first two days of December 2008. The auditorium of the National Institute for Science and Mathematics Education Development (NISMED) in UP Diliman served as a locus for the congregation of some 200 members of the Philippine biosciences community, both from the academe and from other private and public agencies.

Transdisciplinary: the new buzzword in research

The difference of the term 'transdisciplinary' from its cousins 'multidisciplinary' and 'interdisciplinary', according to current PSBMB president Dr. Cynthia Palmes-Saloma, lies in the extent to which the division among the disciplines is bridged. Multidisciplinary approaches have been the mode in science for hundreds of years, with scientists from different fields attempting to solve similar problems but from the perspectives of their own fields, with a minimum of interaction between them. Interdisciplinary approaches bridge the gap among the disciplines a little more, with experimental methods and approaches shared among differing disciplines.

The transdisciplinary approach to scientific research provides the most cohesive platform among the three. In this research paradigm, the problems themselves are rethought and restated from the point of view of several disciplines. Such an approach is most appropriate, especially at a time when unsolved scientific conundrums are increasing in complexity.

Fresh scientists, fresh approaches

This year's PSBMB convention is notable in its choice of young researchers as plenary speakers. The decision to select relatively young scientists was a deliberate one, according to Dr. Saloma. This was the brainchild of the chair of the scientific program committee, Dr. Gisela P. Concepcion. This year's panel of young plenary speakers is expected to revitalize the research scene in the Philippines through their fresh

Plenary Speaker Dr. Pedro Jose, PSBMB President and Convention Chair Dr. Cynthia Saloma and College of Science Dean Dr. Caesar Saloma open the PSBMB 35th Annual Convention with the traditional ribbon-cutting ceremony. Also in the photo are PSBMB Board Members (left to right) Drs. Miren Santos, Gabby Romero, John Donnie Ramos (partly hidden), Nina Rosario Rojas and Gisela Concepcion.

In lieu of the usual open forum, held after each plenary speaker had given his or her talk, the last PSBMB convention experimented with cluster sessions which allowed participants the opportunity to interact more closely with the speakers.

insights and youthful energy. Good-naturedly dubbed "young and fresh", the speakers shared their research work in six separate plenary sessions: Plenary 1: Protein Biology (Dr. Neil Bascos, UPD - *"Protein Erectile Dysfunction: Loss of Structural Rigidity in the J-domain Leads to Loss of ATP Hydrolysis Stimulation in DnaK"*; Dr. Philip Ian Padilla, UPV - *"Association of Guanine Nucleotide-exchange Protein BIG1 in HepG2 Cell Nuclei with U3 snoRNA"*; Dr. Gertrude Derekito, UPV - *"Stimulation of Embryonic Stem Cells to Differentiate into Pancreatic B Cells by Co-axial Method with Momordica charantia Linn."*); Plenary 2: Molecular Diagnostics and Therapeutics (Dr. Windell Rivera, UPD - *"Fecal Antigen Capture Immunoassay for the Diagnosis of Enteric Amebiasis by Recombinant Monoclonal Antibody"*; Dr. Rowena Antemano, UPD - *"Early Emotional Stress Alters the Density and Structure of Astrocytes in the Limbic Region"*; Dr. Francisco Chung, UPM – *"Relationship of Thalidomide Pharmacokinetics and its Anticancer Activity"*; Dr. Gracia Fe Yu, UPM – *"Tumor Cell Proliferation Inhibitory Activity of Saponins in Limuran (Calamus ornatus Blume var. philippinensis) Shoot"*).

Plenary 3: Nanotechnology (Dr. Jane Goh, University of Toronto and Axela, Inc., Toronto - *"Water Soluble Quantum Dots"*; Dr. Cynthia Palmes-Saloma, UPD - *"Nanomaterials in Cancer Tracking and Biosafety Issues Associated with their Therapeutic Applications"*; Dr. Cynthia Goh, University of Toronto - *"Applications of Diffraction-based Sensing"*). Plenary 4: Immunology and Animal Biochemistry (Dr. Denise Mirano-Bascos, UPD - *"The Effect of Antigen Structure on Helper T-cell Epitope Immunodominance"*; Dr. John Donnie Ramos, UST - *"Genes and Allergens in the Pathogenesis of Allergies among Filipinos"*; Dr. Mary Beth Maningas, UST - *"Molecular Mechanism of BIODEFENSE Genes in Shrimp Immunity as Revealed by RNA Interference"*; Dr. Cynthia Hedreyda, UPD - *"Up Close and Molecular: Vibrios Pathogenic to Shrimp"*; Dr. Maria Amelita Estacio, UPLB - *"Submandibular Epidermal Growth Factor: A Possible Performance Enhancer in Female Breeders"*).

Plenary 5: Genomics, Systematics and Animal Ecology (Dr. Vernie Sagun, ADMU - *"Molecular Systematics of Malesian alcalypha (Euphorbiaceae)"*; Dr. Jonas Quilang, UPD - *"Generation, Analysis and Applications of Expressed Sequence Tags"*; Dr. Nina Rojas, ADMU - *"Searching for Glycosidases in Medicinal Plants"*; Dr. Elsie Jimenez, UPB

UPD - UP Diliiman, UPV - UP Visayas, UPLB - UP Los Baños, UPB - UP Baguio, UST - University of Santo Tomas, ADMU - Ateneo de Manila University, PhilRice - Philippine Rice Research Institute.

- *"Distinct Families of Conotoxins Targeted to Nicotinic Acetylcholine Receptors"*); Plenary 6: Molecular Biology in Agriculture and Microbial Systematics (Dr. Vermando Aquino, UPD - *"Research on Plant Viruses: Pathogen-derived Resistance and Plant Virus-based Expression Vectors"*; Dr. Roberta Garcia, UPLB - *"Coconut Storage and Oil-Body Protein: Blazing New Trails in Coconut Research and Utilization in the Philippines"*; Dr. Antonio Alfonso, PhilRice - *"Tracking Down Elusive Restorer of Fertility Gene for the Wild Abortive Type of Cytoplasmic Male Sterility in Rice"*; Dr. Gabriel Romero, PhilRice - *"Tagging of Tungro Resistance and Introgression into New Rice Varieties"*).

The researches presented during the plenary sessions reflected the preponderance of interdisciplinary approaches in the biosciences, with a free flow of methods from other fields such as physics, mathematics and chemistry woven into the biological sciences. The gradual shift toward transdisciplinary approaches was highlighted by the presence of systems biologist Dr. Eduardo Mendoza, physical chemist Dr. Cynthia Goh, and organic synthetic chemist Dr. Jane Goh. All in all, the innovative studies presented during the plenary sessions generated positive reactions from the conference participants.

The presence of a friendly, informal atmosphere throughout the proceedings is also commendable. This ambience of open discussion was due in large part to the format of the plenary sessions: after each session, sufficient time was provided for cluster discussions to take place in which the participants were free to literally *cluster* around the speaker whose lecture they found most interesting. Such clustering sessions, also an idea of Dr. Concepcion, facilitated further discussion of the research, and allowed for more personal interaction between the speaker and the rest of the participants. To further highlight their accomplishments and generate interest in their work, Dr. Concepcion had individual posters, featuring each speaker, displayed all around the auditorium.

2008 PSBMB – Roche Young Scientists' Forum (YSF) winners Alexander Juson and Joan Marie Flor together with Dr. Pedro Jose, Chair of the Board of Judges.

The efficacy of the cluster discussions in generating linkages was evidenced by the fact that participating scientists would often continue to converse about their research interests and possible collaborations, even after the cluster discussions were finished.

Voices of experience: Balik-Scientists Dr. Pedro Jose and Dr. Eduardo Mendoza

Two distinguished Filipino scientists, Dr. Pedro Jose and Dr. Eduardo Mendoza, delivered keynote lectures during the conference. Their lectures were part of a larger initiative—appropriately called the Balik-Scientist Program—that aims to bring expatriate scientists back to the country to share their expertise. Dr. Pedro Jose, who is based in the United States, has just transferred from Georgetown University Medical Center (Departments of Pediatrics and Physiology & Biophysics) to George Washington University (GWU) where he is the director of the newly created Department of Molecular Physiology. Dr. Eduardo Mendoza, on the other hand, is based in Germany, where he heads a systems biology laboratory in Ludwig-Maximilians-University, Munich.

Dr. Pedro Jose talked about his work on the genetics of salt-sensitive hypertension, particularly on the role of G-protein coupled receptor kinase 4 (GRK4) variants in the prevalent ailment. Peppered with humorous anecdotes, Dr. Jose's lecture was an informative discourse, not only on the genetics of hypertension, but also on the travails and rewards of being a scientist. On the entrepreneurial end, Dr. Jose also stressed the importance of such research in the field of pharmacogenomics (which takes into account genetic variation in the intelligent design of drugs), underscoring the fact that researchers can practice good science and be business-minded as well.

Dr. Eduardo Mendoza talked at length about intelligent drug design, this time from the point of view of systems biology. The archetypal transdisciplinary field, systems biology, is founded on input from a multitude of disciplines: biology, chemistry, mathematics, computer science, physics, and engineering, to name a few. Dr. Mendoza discussed how the modeling of biological processes can aid in the direction of both basic and applied research. In particular, he talked about

how biochemical modeling can aid in reducing the time and cost involved in drug development, in two ways: first, by generating information on which biochemical pathways to target to most efficiently block the illness, and second, to eliminate drug candidates with a low potential for success, even before the clinical testing stage.

Young Scientists' Forum and poster presentations

On the second day of the convention, selected undergraduate research projects were given the floor in the Roche Philippines-PSBMB Young Scientists' Forum (YSF). (Each year, the YSF is the most awaited and most exciting part of the PSBMB Convention.) The transdisciplinary nature of this year's PSBMB convention was reflected even in the finalists of the YSF. Though expectedly dominated by entrants from the life sciences, the presence of a finalist from the National Institute of Physics, UP Diliman (Reniel Cabral, who worked on *"Modeling the Growth of Budding Yeast"*), hints at future diversification in the research competition.

The other YSF finalists were Ma. Corazon Cabanilla and Richmond Paul E. Goce, both from the National Institute of Molecular Biology and Biotechnology (NIMBB) in UP Diliman, who worked on *"Development of an In-house Multiplex PCR Protocol for the Detection of Mycobacterium tuberculosis in Philippine Pediatric Cases"* and *"Sequence Analysis of Gene Fragments from a Non-pathogenic Vibrio harveyi (VIB 295) Amplified through toxR-targeted PCR"*, respectively; Franco Antonio C. Cantangui and JM Flor, both from the Department of Biology, UP Manila, who worked on *"Mutation Profile of Mycobacterium tuberculosis Isolates from the Philippine General Hospital: Clustering of rpoB and katG Sequences", and "Development of an In-house Multiplex RT-PCR (MRT-PCR) Method for Detection and Simultaneous Serotyping of Dengue Virus Infection"*, respectively; and Mike-Kenneth G. Doratan and Alexander D.S. Juson from the Department of Biological Sciences, University of Santo Tomas, who worked on *"Prevalence and Species Distribution of Cryptosporidium Among School Children of Payatas, Quezon City using Direct Fluorescence Antibody (DFA) Assay and Nested Polymerase Chain Reaction – Restriction Fragment Length Polymorphism (nPCR-RFLP) Analysis", and "Discovering a Novel Endemic Philippine Genus of Rubiaceae using the Regions of Internal Transcribed Spacer (nrDNA)"*, respectively.

After a long deliberation by the panel of judges, Ms. JM Flor and Mr. Alexander Juson were named winners and shared the award for their outstanding research projects. This year, the PSBMB started a partnership with Roche Philippines which co-sponsored the YSF and gave generous cash prizes to the winners and all the participants.

The winners of the poster competition were also adjudged on the second day of the conference. Dr. Mary Ann Torio (from the Institute of Chemistry in UP Los Baños) bagged first place for her poster about *"Protein Engineering of Sulfhydryl Groups in Mungbean (Vigna radiata (L.) R. Wilczek) Vicilin and Effects on its Functional Properties"*. The second prize went to Adrian M. Constantino from NIMBB, UP Diliman, for his poster about *"A New Putative Toxin Gene Sequence Isolated from the Venom Duct cDNA Library of Terebra subulata"*. Reggie Y. de la Cruz (from the Department of Biology of the Central Mindanao University) was awarded third place for his poster on *"Cloning and Characterization of a Putative Gene Encoding Poly(A)-binding Protein in Normal and Mutant Coconut (Cocos nucifera L.) Solid Endosperm"*.

PSBMB and the practical side of science

Practical considerations in getting one's research funded was the topic of the final lectures in the convention. Dr. Gisela P. Concepcion of the Marine Science Institute and Dr. Pedro Jose discussed the funding mechanisms of the US National Institutes of Health, and the grant application process. The witty and informative lectures piqued the interest of the conference participants.

Finally, the annual PSBMB lecture in honor of Dr. Clara Y. Lim-Sylianco, delivered by Dr. Mafel Ysrael (about "The University of Santo Tomas BS Biochemistry Program: Then and Now"), and the induction of new members closed off what had been, ultimately, a fruitful and edifying convention.

Post-convention workshops: Bringing home the fruits of the 35th PSBMB convention

PSBMB convention participants were given the opportunity to learn new laboratory techniques in a series of post-convention workshops held on December 3 and 5, 2008. Seventeen (17) participants signed up to avail of the workshops, which included introductory lessons and hands-on training in the following techniques: *Live-Cell Imaging and Immunostaining* (sponsored by Medical Test Systems Inc.), *Spectral Karyotyping and Cancer Molecular Detection* (sponsored by Omnibus Bio-Medical Systems, Inc.), *Flow Cytometry* (sponsored by Diamed Enterprises and BD Biosciences Inc.), and *Automated DNA Extraction and PCR* (sponsored by Paddington Trading).

Overall response to the workshops was positive: the participants were very interested in the techniques and in the hands-on training. The PSBMB also received requests for additional hands-on workshops for those who were not able to join. Coupled with the two-day PSBMB convention, the post-convention workshops helped researchers in keeping current with new laboratory techniques and innovations and likewise introduced to the members of the PSBMB the different state-of-the-art equipment recently acquired by the Technology Incubation Centers at the National Science Complex within the College of Science in UP Diliman.

PSBMB convention workforce

This year's annual convention was spearheaded by the convention chair, Dr. Cynthia Palmes-Saloma, PSBMB president and deputy director of UPD NIMBB. Working hand-in-hand with her were Dr. Gisela P. Concepcion, head of the scientific program, and assisted by Ms. Xy-za Oro; Ms. Angela Clarissa dR. Cantalejo, in-charge of the convention secretariat and registration; Dr. Grace B. Yu, chair of the YSF; Dr. Vivian S. Tolentino, in charge of the awards committee; Ms. Armila Ruiz and her team together with Ms. Maoi G. Arroyo, for sponsorships and trade exhibits; Dr. Johnnie A. Ramos, head of the membership committee and Dr. Ameurfina D. Santos, head of the ways and means and finance committee. The preparation of the post-convention workshop materials was led by Dr. Virginia D. Monje, while artwork and formatting of the brochures, proceedings, and posters were done by Mr. Adrian Constantino.

Altogether, it appears that the 35th Annual PSBMB Convention was a resounding success in that it brought to the fore a new breed of bright, young scientists who hold the future of Philippine biosciences in their hands.