

APCHG 2017: a tribute to the past, a bridge into the future

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The 12th Asia-Pacific Conference on Human Genetics (APCHG) with the title “Genomic Medicine and Clinical Practice” was held in Bangkok, Thailand from 8–10 November 2017. The event was organized by the Birth Defects Association (Thailand) and co-hosted by the Thailand Ministry of Public Health, Genetics Society of Thailand, Thailand Association of Maternal & Fetal Medicine as well as other partners.

The conference saw the attendance of more than 500 experts and medical practitioners from all places, including research institutions, professional associations, transnational corporations and third-party organizations as they came together to discuss a wide variety of topics on human genetics. Some notable attendees include Dr. Lai Poh San, President of The Asia Pacific Society of Human Genetics (APSHG), Professor Emeritus Pornswan Wasant, Chair of the APCHG 2017 Organizing Committee, and renowned geneticists Prof. John C. Carey and Prof. Judith G. Hall (*Figure 1*).

This year's conference could be seen as a tribute to the past, as the very 1st APCHG was also held in Bangkok, Thailand. For the past 22 years, the field of human genetics has seen extraordinary transformation and improvements, pushing boundaries between content, technology, data, and platforms, and has brought these areas closer in a way that they have never been before (*Figures 2,3*).

Prof. Judith G. Hall from the University of British Columbia, Canada presented an abstract titled “Arthrogryposis (Multiple Congenital Contractures): The Importance Of Fetal Movement”. In her presentation, she shared that arthrogryposis is a relatively common birth defect, and that we have identified over 300 specific genes and mutations where all types are associated with decreased fetal movement. Decreased fetal movement will cause secondary changes, including slow and decreased growth, osteoporosis, congenital joint contracture, and craniofacial and pulmonary abnormalities. She also said that research targeted towards fetal physiological pathways and its corresponding molecular mechanisms will bring about new and innovative therapies (*Figure 4*).



Figure 1 A packed audience in the conference hall.



Figure 2 Welcome address by Dr. Lai Poh San, President of APSHG. APSHG, The Asia Pacific Society of Human Genetics.



Figure 3 Welcome address by Prof. Emer. Pornswan Wasant, Chair of APCHG Organizing Committee.



Figure 4 Prof. Judith G. Hall and her insights on Multiple Congenital Contractures.

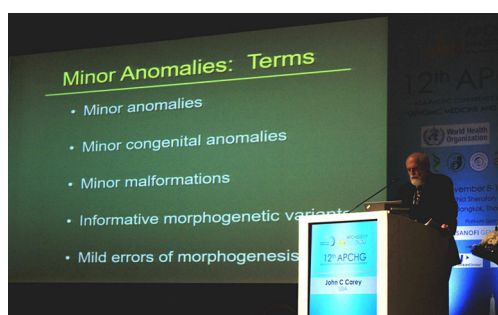


Figure 5 Prof. John C. Carey's lecture on the topic "The Art & Science of Using Facial Features in Diagnosis".



Figure 6 Prof. Stephen Lam sharing his experience on the Clinical Genetic Service led by himself in the Hong Kong Sanatorium & Hospital.

Prof. John C. Carey from the University of Utah presented the audience with a captivating lecture on the topic of "The Art & Science of Using Facial Features In Diagnosis". In his lecture, Prof. Carey talked about how the analysis of facial feature changes is an important and essential skill to have in the field of pediatrics and clinical

genetic study. Two most recent studies in the research of the human face have provided practitioners and researchers more standardized and objective facial assessment methods. During his lecture, he also highlighted the importance of using consensus terminology for the skull, face, periorbital region, nose, philtrum, mouth, and ear by the use of various examples (*Figure 5*).

Prof. Stephen Lam from the Hong Kong Sanatorium & Hospital shared his experience in starting a medical service project known as the "Clinical Genetic Service" led by himself in a private setting. The Hong Kong Sanatorium & Hospital started the Clinical Genetic Service in 2006, and is made up of regular genetic diagnosis and clinical consultation. The Clinical Genetic Service has worked closely with the hospital's reproduction center, and has provided a genetic analysis service to its patients. Prof. Lam stated that this is the first Clinical Genetic Service set up in Hong Kong by a private institution, and he believes that this experience may serve as guidance for other Clinical Genetic Services that are planned to be set up in the Asia-Pacific region (*Figure 6*).

Prof. Katsushi Tokunaga from the University of Tokyo shared his research as he presented an abstract titled "Genetics of Hepatitis B/C Virus Related Diseases". His research team performed a genome-wide search for genetic factors of Hepatitis B and C virus-related diseases. By the use of genome-wide association study (GWAS), his team found that HLA-DPA1/DPB1 are major susceptibility genes to chronic hepatitis B (CHB) and hepatocellular carcinoma (HBV-HCC). What was interesting, he said, was the fact that his team found that heterozygous individuals that have both susceptible and protective alleles appear to be resistant to CHB. In addition, HLA DR/DQ region was identified to be the main genetic factor for response to HBV vaccination (*Figure 7*).

Dr. Helena Pachón from Food Fortification Initiative and Emory University, Atlanta USA shared a study on the addition of folic acid in wheat flour and its effect on birth prevalent neural tube defect incidence rates. She shared that folic acid is a synthetic form of folate, or vitamin B9. The consumption of wheat flour fortified with folic acid increases blood folate measures, subsequently reducing the incidence rates of neural tube defects, such as spina bifida and anencephaly. Not only so, Dr. Pachón also stated that 12 countries had measured the rates of birth prevalent neural tube defects before and after the fortification of folic acid with wheat flour, and results showed that it had decreased by 11% to 78%. In addition, in specific types of



Figure 7 Prof. Katsushi Tokunaga talking about his research on the genetics of hepatitis B/C virus related diseases.



Figure 8 Dr. Helena Pachón sharing her study on “Folate Fortification”, where she talked about wheat flour fortified with folic acid and its benefits in reducing birth prevalent neural tube defect incidence rates.

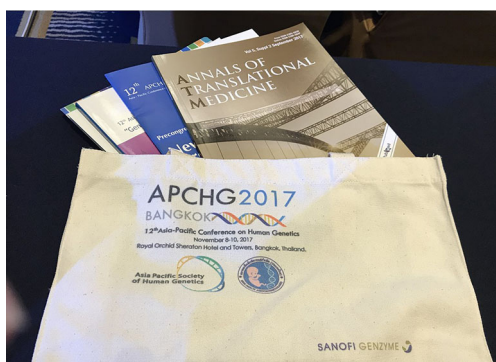


Figure 9 As the academic journal sponsor for this conference, *Annals of Translational Medicine* published the abstracts presented in this conference, where it was included in the starter pack handed to all attendees.



Figure 10 AME's booth at the conference.

neural tube defects such as spina bifida, this number has reduced 0.3% to 9.4%. Dr. Pachón said that in order to increase the efficacy of folic acid, international guidelines and country experiences may be used in countries interested in using wheat flour fortified with folic acid (Figure 8).

As one of the main sponsors of the conference, *The Annals of Translational Medicine* published the conference title, abstract and content exclusively, and delivered these conference materials into the hands of the attendees. The AME Reporting Team also set up a booth at the event as they discussed and shared genetics-related questions and knowledge with the experts (Figure 9).

AME's academic platform was recognized by the president of the APSHG, the chair of the conference and scholars alike. AME's strong and positive academic image had acted as a solid foundation for APSHG's heightened interest in a signing a cooperative agreement with *Annals of Translational Medicine* (Figures 10-12).

While genomic medicine has progressed by leaps and bounds over the past years, evolving from a time of exploration into an era of actual practice, there is still much to do to reduce the gap between the two. This requires the consistent effort and hard work from many scholars as they continue with the work of the past while opening up the future. The success of the 12th APCHG has bridged the distance between basic research and clinical practice. Innovation and breakthroughs will lead academic discussions in creation of the next Golden Era in the field of genomic medicine.

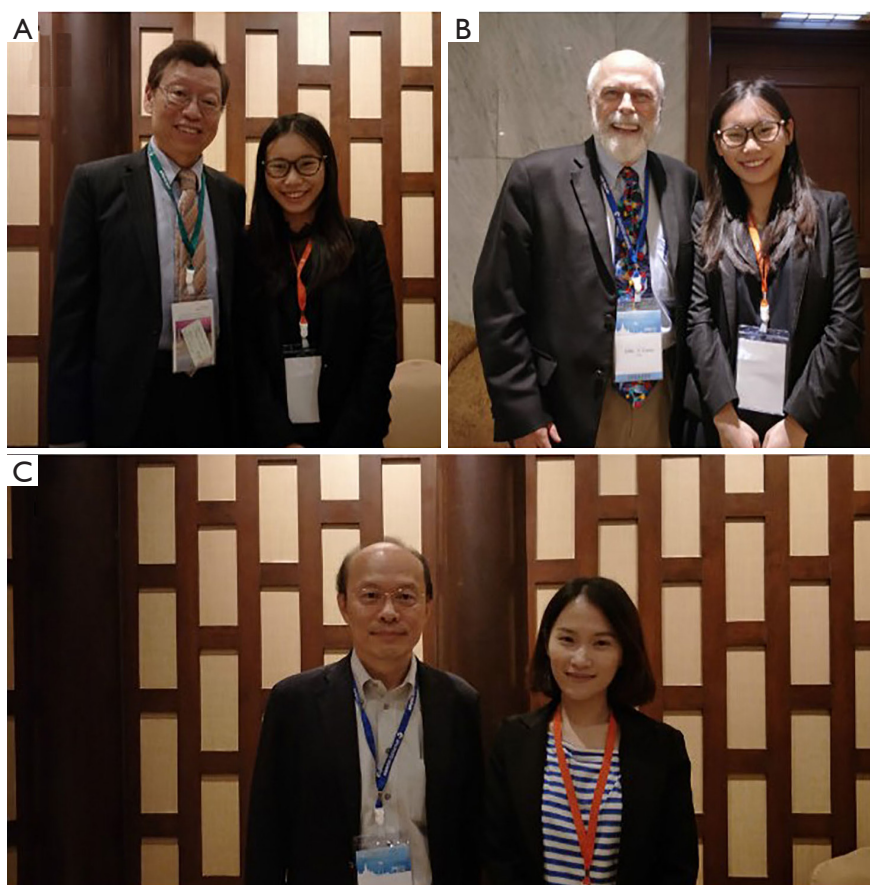


Figure 11 AME editors' group photos with the experts. (A) Prof. Stephen Lam, Hong Kong Sanatorium & Hospital; (B) Prof. John C. Carey, University of Utah; (C) Prof. Katsushi Tokunaga, The University of Tokyo.

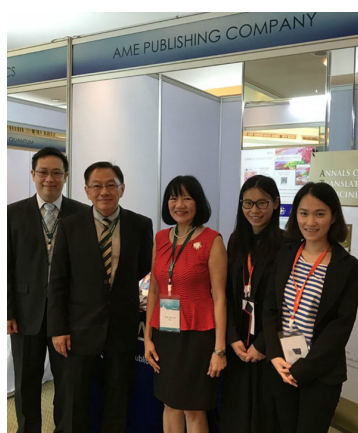


Figure 12 AME editors' group photo with President of APSHG, Dr. Lai Poh San (third left). APSHG, The Asia Pacific Society of Human Genetics.

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None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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