7th International Conference on Biochemistry and Molecular Biology

S1-K-01

Genomics in Medicine, Public Health, and Society

Vorasuk Shotelersuk

Center of Excellence for Medical Genomics, Department of Pediatrics, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand; Vorasuk.s@chula.ac.th

Abstract: Advances in genetic sequencing technology and computer science have taken molecular biology studies from a level of "genetics" (a single or a few genes) to "genomics" (the whole DNA sequences of an organism). Knowing the meaning and impact of nucleotide variation on health and disease moves the genome from laboratory to medical practice, "genomics medicine". Combing personalized genomic information with individual behavior and environmental factors generates "precision medicine". In addition, the rapidly declining sequencing cost has taken the use of genomics for medicine to the level of "precision public health".

My presentation will highlight the current situation and future global trends of precision medicine. I will also provide updated information on the Genomics Thailand Initiative including policies, directions, infrastructure, work plans, manpower, participation of medical personnel, scientists, and researchers, as well as business opportunities. There are 5 main areas of the research: rare and undiagnosed diseases, cancer, pharmacogenetics, non-communicable disorders and infectious diseases. Importantly, policy on sharing genomics data as well as dimensions about ethical, legal, and social issues (ELSI) will be touched. I will include works of our lab including the discoveries of new human disease genes and their implications. In addition, I will share our real experience in the application of clinical exome and genome sequencing in clinical practice in a Thai context.

Keywords: Genetic diseases, precision medicine, next-generation sequencing, rare disease, Genomics Thailand

Funding: This research was funded by Health Systems Research Institute and TSRI Fund (CU_FRB640001_01_30_10).