International Conference and Exhibition on

Metabolomics & Systems Biology

20-22 February 2012 San Francisco Airport Marriott Waterfront, USA

Micro RNA expression profiles and lipids and non-lipids responses to statins treatment among patients with primary hypercholesterolemia and treated with Pitastatin and Atorvastatin in a paralleled randomized controlled trial study

Kuo-Liong Chien

Institute of Epidemiology & Preventive Medicine, College of Public Health, National Taiwan University, Taiwan

Statin treatment has shown to significantly reduce coronary heart disease events ; however, individual variations of low density lipoprotein cholesterol (LDL-C) after statin treatment has been attributed from genetic variants. In addition, pleiotrophic effects of statin, including anti-inflammation and anti-atherosclerosis effects, have been demonstrated. Our previous studies have shown candidate genes in the statin-related pharmacokinetic and pharmacodynamic pathways related to the reduction of LDL-C. However, information from candidate gene approach was limited on genetic information and trait expressions. A novel strategy using high through output platform on gene expression profiles, using peripheral blood mononuclear cell as the target cell, has been proven as a feasible tool for genomic study. Therefore, we design a large-scale application of the full range of transcriptomics technology, focusing on gene expression profiles from peripheral mononuclear cells in 40 hypercholesterolemic patients who received either pitastatin 2 mg or atorvastatin 10 mg for LDL-C lowering, and another 60 subjects for validation in a multi-center randomized controlled trial.

The specific aims of this proposal will include the following:

a) The discovery and validation of gene expression profiles predictive of lipid and non-lipid biomarkers, including anti-inflammation and anti-atherosclerosis biomarkers, after statin treatments;

b) The exploration of the association of these lipid and non-lipid biomarkers with two kinds of statins, and potential class-specific or unique drug-specific effects;

c) The discovery and validation of biomarkers of exposure to two statins and potential interaction with environmental exposures.

The unique feature of this study includes a well-designed randomized clinical trial study with abundant gene expression profiles and biomedical markers data to examine and with experienced clinicians, laboratory experts and epidemiologists to conduct the study. Under the infrastructure in a tertiary hospital center and the school of public health and school of medicine, we assure the participant compliance, follow-up schedule, quality control and outcomes measurements. In addition, the support from the core laboratory from the medical campus will definitely faciliate the process of data collection and study procedure, then providing an excellent data control and quality assurance. This study will provide substantial information about gene expression profiles and transcriptomes as well as lipids and non-lipids and will improve implementation of statin-related genomics in clinical practice.

Biography

Dr. Kuo-Liong Chien is Professor at Institute of Epidemiology & Preventive Medicine, College of Public Health, and National Taiwan University. He did his Bachelor of Medicine, PhD in Section of preventive medicine from National Taiwan University. He is an attending physician, Department of Internal Medicine, National Taiwan University Hospital. He is also serving as a Chief Executive, Translational Medicine Resource Center, Taiwan. He won NTU Excellent Researcher award for four consecutive years. He is serving as Editorial advisory board member for four international journals of repute. He has 77 publications in journals all over the world and presented his work in various National & International Conferences.