

Genome-wide association studies: Applications and insights gained in Ophthalmology

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Date: 30 March 2017 (Thursday)
Time: 9.30am – 10.30am
Venue: MAS Executive Classroom 2, MAS-03-07
School of Physical and Mathematical Sciences

Abstract

Genome-wide association studies (GWAS) use high-throughput genotyping technologies to genotype and impute millions of single-nucleotide polymorphisms (SNPs) and relate them to the development of clinical and quantitative traits. Their use has been highly successful in the field of ophthalmology, and since the advent of GWAS in 2005, many genes not previously suspected of having a role in disease have been identified and the findings replicated.

In this seminar, Dr. Zhao will report findings from the large multi-ethnic meta-analysis of genome-wide association studies of complex ocular diseases by the International Cataract Genetics Consortium. They identified several new loci associated with these eye diseases and replicated the association through large-scale multi-ethnic meta-analysis of GWAS. These findings provide additional candidate genes for follow-up work and may lead to uncovering of previously unknown mechanisms in ocular diseases formation.

Speaker Biography

Dr. Zhao Wanting is a principle statistician in Singapore Eye Research Institute. She received her PhD in Statistics from National University of Singapore in 2010, and then pursued her postdoctoral research in the Human Genetics department in Genome Institute of Singapore from 2010-2014. She previously worked on understanding the biological basis of disease inheritance, involving identifying genetic variants associated with human disease by genome-wide association analyses and developing risk prediction models for complex diseases based on common genetic variation. She researched on diverse disease phenotypes, including liver cancer, breast cancer, atopy, inflammatory bowel disease, and Parkinson's disease.

Dr. Zhao's research currently focuses on the epidemiology and genetics of major eye diseases, in particular, identification of susceptibility genes for complex ocular diseases such as glaucoma, cataract and myopia, using both genome-wide association approaches and next-generation sequencing technology.

Host: Division of Mathematical Sciences, School of Physical and Mathematical Sciences