

# 8<sup>th</sup> International Conference and Exhibition on METABOLOMICS & SYSTEMS BIOLOGY

May 08-10, 2017 Singapore

## Metabolite profiling in identifying metabolic biomarkers in older people with late-onset diabetes mellitus

Zhi Yang Tam

Nanyang Technological University, Singapore

Regulation of blood glucose in the body requires precise coordination between different endocrine organs. Diabetes mellitus arises from a dysregulated response to elevated glucose levels in the circulation. Globally, the prevalence of diabetes has increased dramatically in all age groups. Diabetes in older adults is associated with higher mortality and reduced functional status, leading to higher rate of institutionalization. Despite the potential healthcare challenges associated with the presence of diabetes in the older population, the pathogenesis and phenotype of late-onset diabetes is not well studied. Here we applied untargeted metabolite profiling of urine samples from people with and without late-onset diabetes using ultra-performance liquid-chromatography mass-spectrometry (UPLC-MS) to characterize the urine metabolic profile for the identification of urinary biomarkers for late-onset diabetes in older individuals. Statistical modeling of measurements and thorough validation of structural assignment using liquid chromatography tandem mass-spectrometry (LC-MS/MS) have led to the identification of metabolite biomarkers associated with late-onset diabetes mellitus. Lower levels of phenylalanine, acetylhistidine, and cyclic adenosine monophosphate (cAMP) were found in urine samples of diabetes subjects validated with commercial standards. Elevated level of 5'-methylthioadenosine (MTA) that previously has only been implicated in animal model of diabetes, was found in urine of older people with diabetes.

### Biography

Zhi Yang Tam is a Computational Biologist with experience in applying supervised and unsupervised machine learning methodology on high throughput and imaging data, modeling biological processes using deterministic and stochastic models and applying other statistical tools to derive insights into biological process.

tamzhiyang@ntu.edu.sg

### Notes: