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Serum Metabolites Analysis for Diagnosis of Myasthenia Gravis

Ngai Sai Ming* and **Yonghai Lu**
The Chinese University of Hong Kong, Hong Kong

Myasthenia gravis (MG) is a chronic auto-immune neuromuscular disorder. Current diagnostic measures for MG still remain a challenge. In this study, metabolomics was applied to find serum biomarkers of MG patients to develop a new and effective diagnostic tool for early-stage MG. Serum samples were collected from 30 patients with MG class II and randomly from 17 healthy volunteers. These samples were analyzed by liquid chromatography/Fourier transform mass spectrometry (LC/FTMS). Multivariate statistical analyses were employed to analyze the spectral data. Firstly, orthogonal partial least-squares analysis (OPLS) was used to determine significant differences between MG patients (n=20) and healthy people (n=10). Then, partial least squares discriminant analysis (PLS-DA) class prediction was performed on a total of 17 subjects (10 MG and 7 healthy samples) that were not used in above OPLS model. With the OPLS model, 40 serum metabolites were temporarily identified as biomarkers of MG, which were used to distinguish between MG patients and health people. With the PLS-DA prediction model of the 10 MG samples, 10 were predicted correctly and of the 7 healthy samples, 6 were predicted correctly. The results illustrated that serum metabolomics provides good performance in discriminating MG patients from healthy people and it may be useful for detecting early-stage MG.

Biography:

Prof. Ngai Sai Ming has over 20 years experience in Protein/Peptide biochemistry, proteomics and computational techniques and is the author of over 70 scientific publications, 4 book chapters and numerous conference papers. He is currently Director of The Chinese Medicinal Fungal Proteomics Laboratory and Investigator of State Key Laboratory for Agrobiotechnology and associate professsor in The School of Life Sciences, in The Chinese University of Hong Kong, Hong Kong SAR, China. His research interest is bioinformatics, proteomics and metabolomics, protein/peptide structural and functional studies and Modern Chinese Medicine.

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