

신증후군 환자의 소변 대사체 분석 및 바이오마커 발굴

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Discovery of Distinct Urine Metabolic Profiles and Biomarkers in Primary Nephrotic Syndrome

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Nephrotic syndrome is nonspecific kidney disorder characterized by proteinuria, hypoalbuminemia, dyslipidemia, and edema, which are represented by minimal change disease (MCD), FSGS (focal segmental glomerulosclerosis), and MGN (membranous glomerulonephritis). To date, there has been no report on clinical parameters that can authentically differentiate the disease status unless direct examination by biopsy. Thus, in current study, we investigated the distinctive metabolic changes from urine samples that can lead to biomarker discovery for practical clinical application. A total of 48 samples were analyzed by mass spectrometry-based metabolite profiling, which included control, MCD, FSGS, and MGN samples. The statistical result demonstrated 22 urine metabolites were significantly altered, and particularly branch-chained amino acids showed dynamic modification compared to control. Subsequently, we discovered the disease-specific alteration in group of metabolites, and further validated the metabolic readouts using receiver operating characteristic (ROC) analysis for validating specificity and sensitivity.

Key Words: 바이오마커, 대사체학, 신증후군

Biomarker, Metabolomics, Nephrotic syndrome