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Non-invasive biomarker candidates of interstitial cystitis

Jayoung Kim
Cedars-Sinai Medical Center, USA

Interstitial cystitis/painful bladder syndrome (IC/PBS) is a debilitating condition that presents with a constellation of symptoms including bladder pain, urinary urgency, frequency, nocturia, and small voided volumes in the absence of other identifiable etiologies. A lack of objective diagnostic criteria has affected our ability to adequately treat the disease. The goal of this proposed study is to identify/validate sensitive and non-invasive diagnostic biomarkers using urine specimens that stratify IC/PBS patients from healthy subjects. NMR spectroscopy-based metabolomics analysis was performed to search for soluble metabolites that segregate with the diagnosis of IC/PBS. Annotation of the NMR peaks was performed using MeltDB and Metabolo Analyst software. It was able to annotate several of the discriminant peaks, including the most significant peak, which was identified as tyramine, a neuro-transmodulator related to pain. These results demonstrate our ability to assay for and provisionally identify discrete urine metabolites that are significantly associated with IC/PBS. This study is believed to provide novel insights about the etiology of IC/PBS and identify urine metabolites as biomarkers of IC/PBS that have the potential to be employed clinically.

Biography

Jayoung Kim is an NIH-funded translational scientist and an Associate Professor at Cedars-Sinai Medical Center. She aims to improve the means of objectively diagnosing IC/PBS and to discover the mechanistic basis for this disorder. She was originally trained as a cancer biologist at Harvard Medical School, and is a rising leader of research on basic urological diseases including IC/PBS. One of the major focus areas in her group is the study of the metabolic signature for the diagnosis of IC/PBS, using a number of approaches, including large-scale "Omics" methods, to elucidate the signaling network in human cells that is perturbed in IC/PBS.

Jayoung.Kim@cshs.org

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