

A Diagnostic Test for Monitoring of Lupus Nephritis

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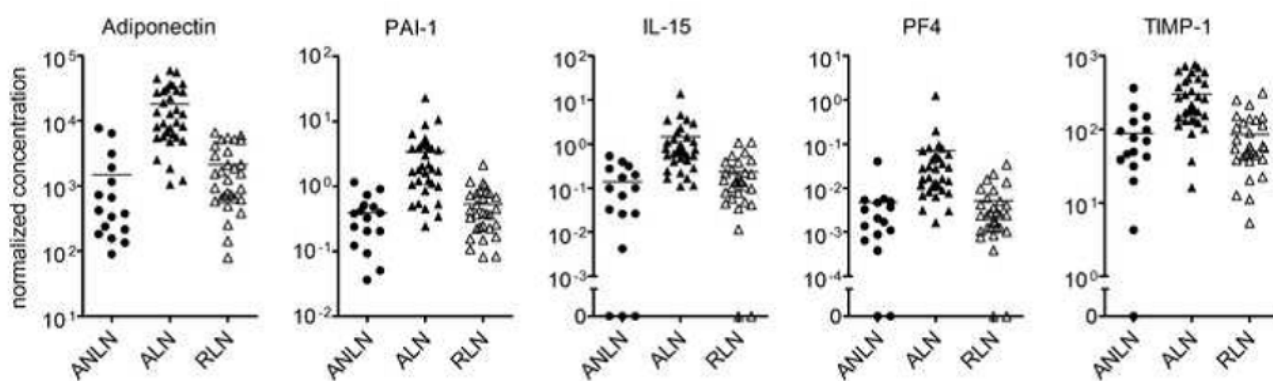
Technology description

Validated urine test for the diagnosis, monitoring and prognosis of Lupus Nephritis

Lupus nephritis (LN) is a major predictor of poor prognosis of the patients with systemic lupus erythematosus (SLE). The incident rate for SLE varies from 7.4 to 159.4 cases per 100,000 people. Since renal involvement is a major complication of the disease current diagnostic of LN includes renal biopsy to confirm disease and to establish histopathological classification of the underlying renal lesion. Identification of histopathological differences is critical for establishing appropriate therapeutic interventions and for prognostic outcomes for LN. No suitable biomarkers that predict early response to therapy or forecast renal flares have been identified.

The urinary test was developed (60 active LN patients, 25 active non-LN SLE patients and 24 healthy controls) and validated (for numbers see figure legend) by researchers from the University Health Network in collaboration with the researcher from the Ontario Institute for Cancer Research. Eight (8) urinary proteins are differentially expressed in patients with proliferative and non-proliferative or chronic lesions on renal biopsy.

The validation study for some of urinary proteins presented in the figure below.



The scattered plots demonstrate the normalized concentration of adiponectin, plasminogen activator inhibitor-1 (PAI-1), interleukin 15 (IL-15), platelet factor 4 (PF4) and metalloproteinase-1 (TIMP-1). The study included SLE patients with active non-LN (ANLN, n=16, closed circles), active LN (ALN, n=33, closed triangles) and in remission (n=30, open triangles).

Publications

Landolt-Marticorena C, Prokopec SD, Morrison S, Noamani B, Bonilla D, and Wither J. A discrete cluster of urinary biomarkers discriminates between active Systemic Lupus Erythematosus patients with and without glomerulonephritis. Arthritis Research and Therapy (2016) 18:2118

Application area

Discrimination between patients with active LN and active non-LN

Monitoring disease activity and response to therapy

Accurately stratifying patients with regards to extent and nature of renal injury without in vivo intervention

Informing long-term prognosis

Institution

[University Health Network](#)

Inventors

[Joan Wither](#)

联系我们



叶先生

电话：021-65679356

手机：13414935137

邮箱：yeyingsheng@zf-ym.com