Early Diagnostic Marker for Treatment Response in Rheumatoid Arthritis

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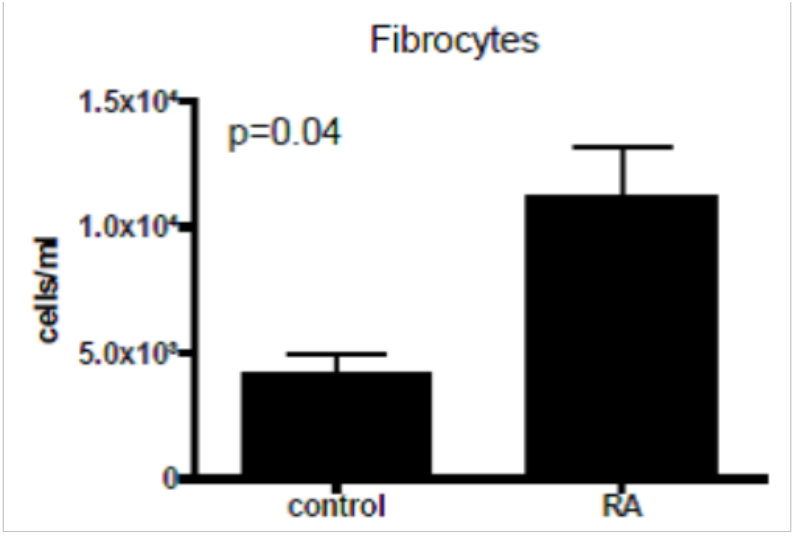
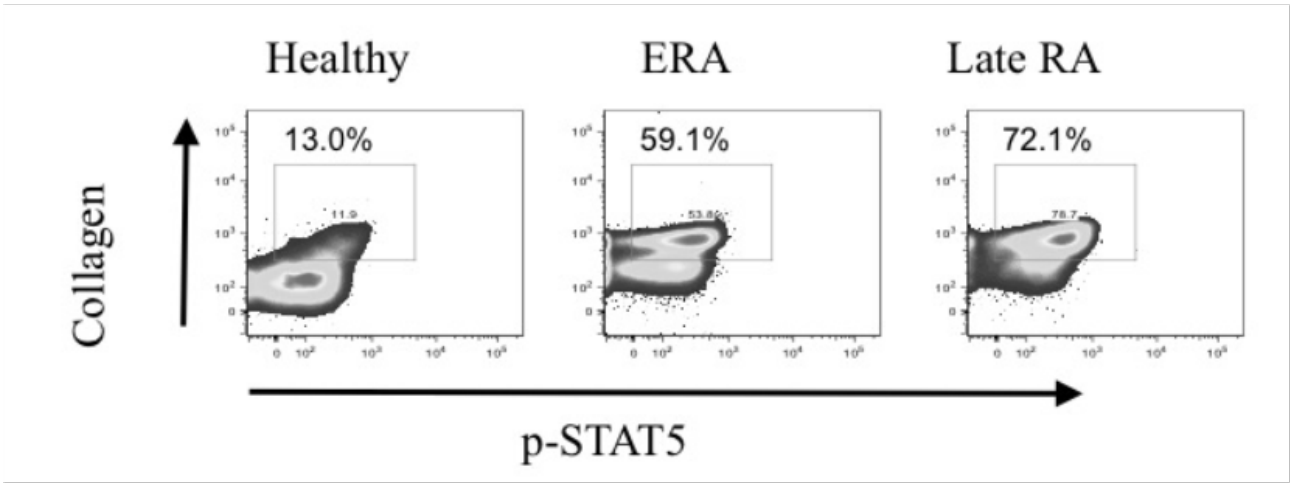
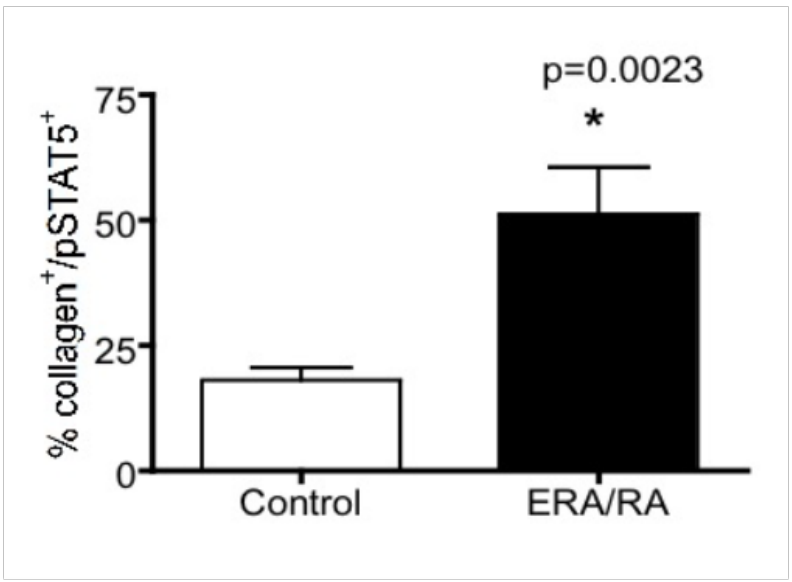
Technology description

Validated protein markers or phosphosignatures discovered in peripheral blood samples of RA patients and in animal models that predict RA, monitor disease progression and response to therapeutics
In recent years there has been a burgeoning of biologic therapeutics for the treatment of Rheumatoid Arthritis (RA). There are currently 6 classes of biologics available for therapeutic use, each targeting a different immune-inflammatory pathway: TNF inhibitors, IL-1 receptor antagonists, B-cell inhibition, T-cell co-stimulation inhibition, IL-6 inhibition, and JAK tyrosine kinase inhibitors. Researchers from UHN, Sinai Health System and Stanford University have discovered precursor cells with validated biomarkers, which are consistently activated in patients with rheumatoid arthritis. This finding may be of significant value, since the activation status can be reliably determined and utilized to diagnose early stage rheumatoid arthritis. In addition, this diagnostic can be used in tandem with medical interventions to monitor response to therapy more rapidly than current strategies. Potentially, the current technology can increase market penetration for existing RA therapeutics.







Cell biomarker in peripheral blood cells from patients with rheumatoid arthritis. Upper panel: Elevated number of circulating fibrocytes in RA patients. Middle & bottom panels: representative profile of peripheral blood cells expressing phospho-STAT5 expression in healthy individuals and ERA/RA patient samples. A significant (P<0.01) increase in phospho-STAT5 signaling in the cell population was

observed in early RA (ERA) and late RA patients compared to healthy controls. Data are shown as mean ± SEM.

Publications

Galligan CL, Siminovitch KA, Keystone EC, Bykerk V, Perez OD, Fish EN, "Fibrocyte activation in rheumatoid arthritis"Rheumatology, 2010; 49(4):640-51
Galligan CL, Keytone EC, Fish EN, " Fibrocyte and T cell interactions promote disease pathogenesis in rheumatoid arthritis." Journal of Autoimmunity, 2016; 69: 38-50.

Application area

Peripheral blood markers for early stage Rheumatoid Arthritis (ERA)
Therapeutic response marker to monitor RA progression

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