

Blood test for early osteoarthritis diagnosis unveiled

October 27 2016, by Tom Frew

Patients could soon be diagnosed with early-stage arthritis several years before the onset of physical and irreversible symptoms, thanks to a new test developed by researchers at the University of Warwick.

Led by Dr Naila Rabbani of Warwick Medical School, the researchers developed a test that can provide an early diagnosis of osteoarthritis (OA) and also distinguish this from early-stage rheumatoid arthritis (RA) and other self-resolving [inflammatory joint disease](#).

The test, which could be available to patients within two years, identifies the chemical signatures found in the plasma of blood joint proteins damaged by oxidation, nitration and glycation; the modification of proteins with oxygen, nitrogen and sugar molecules.

The researchers say that by diagnosing which type of arthritis a patient will develop at an early-stage will allow for appropriate treatment that will provide the best chance for effective treatment and potential prevention.

Patients with early-stage and advanced OA, RA or other inflammatory joint disease were recruited for the study alongside a control group of those with good skeletal health, with plasma and synovial fluid samples from both groups being analysed using mass spectrometry.

Through their analysis the researchers detected damaged proteins in characteristic patterns in the samples of those patients with early and

advanced OA and RA, but were found at markedly lower levels in the samples of those in the [control group](#) – providing the researchers with the identifiable biomarkers necessary for early detection and diagnosis.

Commenting on the discovery Dr Rabbani said:

"Damage to proteins in the arthritic joint have been known for many years but this is the first time it has been exploited for early-stage diagnosis

"For the first time we measured small fragments from damaged proteins that leak from the joint into blood. The combination of changes in oxidised, nitrated and sugar-modified amino acids in blood enabled early stage detection and classification of arthritis – osteoarthritis, rheumatoid arthritis or other self-resolving inflammatory joint disease.

"This is a big step forward for early-stage detection of arthritis that will help start treatment early and prevent painful and debilitating disease."

More information: Protein oxidation, nitration and glycation biomarkers for early-stage diagnosis of osteoarthritis of the knee and typing and progression of arthritic disease, *Arthritis Research and Therapy*, 2016.

Provided by University of Warwick

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