

New research predicts whether rheumatoid arthritis patients will respond to treatment

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A new study led by researchers at Queen Mary University of London provides potential novel biomarkers for predicting patient responsiveness to disease modifying anti-rheumatic drugs (DMARDs).

Rheumatoid Arthritis (RA) patients are commonly treated with disease modifying anti-rheumatic drugs (DMARDs) despite the fact that up to 50% of patients are unresponsive to treatment. Up until now, there has been no way to find out whether a patient will effectively respond to treatment.

The new study, published in the science journal *Nature Communications*, demonstrates that by measuring levels of certain small molecules produced from essential fatty acids in a patient's [blood](#) that are involved in regulating inflammation (known as 'specialized pro-resolving mediators'), predictions can be made about an individual's ability to respond to these drugs.

Lead author Professor Jesmond Dalli from Queen Mary University of London said: "Currently a large proportion of patients with RA are unresponsive to DMARDs and are therefore unnecessarily exposed to their side effects. In addition, it can currently take up to six months from treatment initiation to determine whether someone will or will not respond to these medicines. For the patients who do not respond to the treatment, the disease gets worse before they are able to find a treatment that is more likely to work for them.

"The research was conducted using blood from healthy RA patients who were both responsive and unresponsive to treatment. The blood was collected before treatment initiation or six months after treatment commenced. We then measured the levels of protective molecules using [mass spectrometry](#)-based methodologies that were coupled with artificial intelligence methodologies to identify molecules that can predict responses to treatment."

The paper recommends that the blood levels of the mediator group identified in the study should be measured to predict the responsiveness RA patients to DMARD treatment.

The team plan to conduct a larger study to evaluate if these initial findings can be applied to a bigger patient group.

More information: Blood pro-resolving mediators are linked with synovial pathology and are predictive of DMARD responsiveness in rheumatoid arthritis, *Nature Communications* (2020). [DOI: 10.1038/s41467-020-19176-z](https://doi.org/10.1038/s41467-020-19176-z)

Provided by Queen Mary, University of London

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