

# New method of identifying people at high risk of developing rheumatoid arthritis

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(Medical Xpress)—Researchers at The University of Manchester and King's College London, funded by Arthritis Research UK, have developed a new method to identify people that are at a very high-risk of developing rheumatoid arthritis, using a simple blood test and information about their smoking habits.

Rheumatoid arthritis is a potentially crippling [autoimmune condition](#) that causes pain and inflammation in the joints. It affects around 400,000 people in the UK and is at present incurable.

Many factors are known to contribute to an individual's risk of developing [rheumatoid arthritis](#). These are divided into two categories: inherited [genetic factors](#) and so called 'environmental' factors such as smoking.

Experts in the genetics of rheumatoid arthritis led by Professor Jane Worthington at The University of Manchester teamed up with Dr Ian Scott at King's College London to develop a new computer-based technique of prediction modelling which uses both genetic and [environmental risk factors](#) to estimate an individual's lifetime risk of developing this disease. The Manchester team are also part of the National Institute of Health Research (NIHR) Musculoskeletal Biomedical Research Unit, a partnership between Central Manchester University Hospitals NHS Foundation Trust and The University of Manchester.

This research is published in *PLoS Genetics* this week (Thursday September 19).

"This new computer-based technique of prediction modelling allows us to estimate someone's risk of developing rheumatoid arthritis over their lifetime using [genetic markers](#) from a single blood test and information about their smoking habits", explained Dr Scott.

"I hope that, as we understand the risk factors for rheumatoid arthritis better, our prediction modelling method could be used to screen people for this disease before they develop any symptoms. This is an important first step in trying to develop ways to prevent the onset of rheumatoid arthritis.

"Within the general population, few individuals that have clinically significant increased risks are likely to be identified using this approach. But targeted screening of people already at an increased risk of rheumatoid arthritis, such as relatives of patients, could identify enough high-risk people to allow researchers to look at ways to prevent rheumatoid arthritis from developing."

Individuals classed as being high risk, using information from the most important gene associated with rheumatoid arthritis (the HLA-DRB1 gene), are more likely to develop rheumatoid arthritis at a younger age. They could be monitored for early signs of the disease. Treating rheumatoid arthritis early, before significant joint damage has occurred, increases the likelihood that the individual will go into remission (no joint pain or swelling) following treatment.

Identifying people who are at a very high-risk of developing rheumatoid arthritis can also provide a better understanding of the changes in the body's immune system that lead to rheumatoid arthritis. This in turn could lead to the development of new treatments that target the very

earliest phase of the disease.

Professor Anne Barton, from The University of Manchester's Institute of Inflammation and Repair who also worked on the study, added: "We continue to expand our knowledge of the genetic [risk factors](#) that cause rheumatoid arthritis, allowing us to further improve risk modelling; findings that will be published imminently in the *Annals of the Rheumatic Diseases*. Improving the accuracy with which it is possible to predict an individual's chance of developing this disease, will allow researchers to investigate new ways to stop it in its tracks before any symptoms develop."

**More information:** [www.plosgenetics.org/doi/pgen.1003808](http://www.plosgenetics.org/doi/pgen.1003808)

Provided by University of Manchester

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