

Gene regulating severity of tissue damage caused by rheumatoid arthritis identified

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Severe, rapidly progressive, RA, diagnosed in 1999, and severe damage to finger joints by 2005 are shown. Credit: University College Dublin

Scientists have identified a new protein (C5orf30) which regulates the severity of tissue damage caused by rheumatoid arthritis (RA), an autoimmune disease that causes inflammation, pain, stiffness and damage to the joints of the feet, hips, knees, and hands.

Following the discovery published in the scientific journal *PNAS*, rheumatoid arthritis patients most likely to suffer the severest effects of the condition can now be identified early and fast-tracked to the more [aggressive treatments](#) available.

Although there is no cure for RA, new effective drugs are increasingly available to treat the disease and prevent deformed joints. Self-management of the condition by patients, including exercise, is also known to reduce pain and resulting disability.

To conduct the research, the international team of scientists from University College Dublin and the University of Sheffield, funded by Arthritis Ireland and the University of Sheffield, analysed DNA samples and biopsy samples from joints of over 1,000 Rheumatoid arthritis patients in the United Kingdom and Ireland.

"Our findings provide a genetic marker that could be used to identify those RA patients who require more aggressive treatments or personalised medicine," said Professor Gerry Wilson from the UCD School of Medicine and Medical Science, University College Dublin, who led the research.

"They also point to the possibility that increasing the levels of C5orf30 in the joints might be a novel method of reducing [tissue damage](#) caused by RA".

Dr Munitta Muthana from the Medical School at the University of Sheffield, who co-authored the study said: "These exciting findings will

prompt us to further explore the role of this highly conserved protein that we know so little about, and its significance in human health and disease".

Rheumatoid arthritis is the most common inflammatory of the types of arthritis affecting around 1% of the population. It is estimated that 30% of patients with [rheumatoid arthritis](#) are unable to work within 10 years of onset of the condition. It affects more women than men, and often more severely. It is also most common between the ages of 40 and 70, but it can affect people of any age including children.

One of the biggest difficulties with treating the condition is early diagnosis. With early diagnosis and aggressive treatment, it is possible to reduce the damage to the joints caused by RA. Deciding the most appropriate treatment for each patient at the earliest possible stage is central to effectively tackling the condition.

"Investing in research to find new treatments and ultimately a cure for arthritis is one of our key objectives at Arthritis Ireland," said John Church, CEO, Arthritis Ireland.

"Treatments for arthritis have improved enormously over the last number of years. Thirty years ago, rheumatologists' waiting rooms were filled with people in wheelchairs. Today, that is no longer the case. The outlook for a person diagnosed with arthritis in 2015 is much brighter than it used to be. We are getting closer and closer to personalised medicine. This discovery is further proof that we are in the right space and investing our money wisely," he added.

Provided by University College Dublin

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