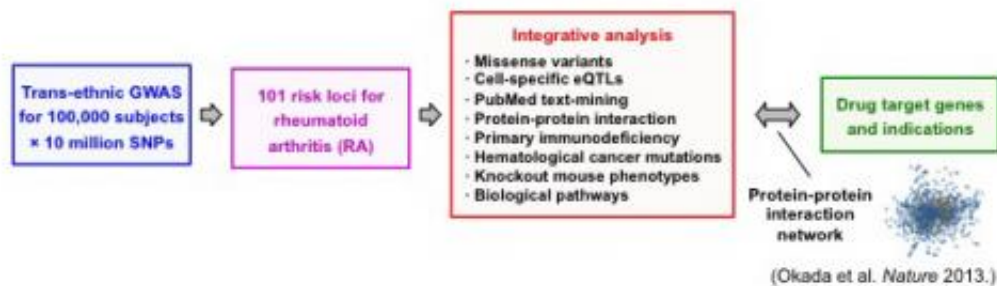


Over 40 genetic links to rheumatoid arthritis discovered

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The results of the largest international study to date into the genetic basis of rheumatoid arthritis, published in the journal *Nature*, shed light on the biology of the disease and provide evidence that large-scale genetic studies can assist in the identification of new drugs for complex disorders such as rheumatoid arthritis.
Credit: RIKEN

A meta-analysis identifying 42 new genetic links to rheumatoid arthritis opens the door to increasing the medical tool box for the autoimmune disorder.

The study is to be published on-line in *Nature* on December 25. One of Canada's pre-eminent researchers of autoimmune disease, Dr. Kathy Siminovitch, played a leading role in the study.

Rheumatoid arthritis is a leading cause of disability world-wide,

afflicting up to one in a hundred individuals, according to World Health Organization estimates. About half of adults with the autoimmune disease are unable to work full time within 10 years of diagnosis. The findings of this study by an international consortium of researchers, including Dr. Siminovitch, offer new potential targets for therapy. She is the Director of the Office of Personalized Genomics and Innovative Medicine at Mount Sinai Hospital and a Senior Investigator at the hospital's Lunenfeld-Tanenbaum Research Institute in Toronto, Canada.

The paper is a meta-analysis of genetic data of more than 100,000 individuals, titled "[Genetics of rheumatoid arthritis](#) contributes to biology and drug discovery." The Lunenfeld-Tanenbaum team was uniquely prepared to validate the findings by cross-referencing the initial findings with [genetic data](#) from patients studied at the hospital's Clinical Genomics Centre and treated for rheumatoid arthritis at its Rebecca MacDonald Centre for Arthritis and Autoimmune Disease, which is the largest centre in Canada devoted to the condition.

A key finding is that the genes whose variants indicate risk for rheumatoid arthritis overlap with genes involved in some cardiovascular diseases and cancers. "We can use this knowledge to figure out the molecular pathways of disease, and which drugs we already have (to treat cardiovascular disease, for instance) that might also be effective against rheumatoid arthritis," Dr. Siminovitch says. "There is also the potential to develop new therapies targeted to some of the specific disease processes that are suggested by these genetic findings."

Additionally, "We can also use this genetic information to treat people in an individualized way depending on which molecular pathway is involved in that person," she explains. "These findings give researchers a vast new body of knowledge that we can translate into clinical advances and personalized medicine for people with rheumatoid arthritis."

More information: Genetics of rheumatoid arthritis contributes to biology and drug discovery, [dx.doi.org/10.1038/nature12873](https://doi.org/10.1038/nature12873)

Provided by The Mount Sinai Hospital

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