MedicalXpress

Study discovers three new lupus genes

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Three newly confirmed lupus genes are opening new avenues of research at the Oklahoma Medical Research Foundation.

A paper published in the April 6 issue of the American Journal of Human Genetics describes three lupus genes discovered by OMRF researchers as part of a massive international collaboration.

With help from partners around the world, including universities and research facilities in Granada, Spain, Taipei, Taiwan, Seoul, Korea, Bogota, Colombia, and across the U.S., OMRF scientists gathered more than 17,000 samples for large-scale genetic testing.

The project, which began in 2009, took a year to gather the samples and another year to run the genetic tests. Since then, the researchers have pored over the data, said lead author and OMRF scientist Christopher Lessard, Ph.D.

"We have pinned down three new genes that show statistical significance for lupus risk," he said. "We've also turned up another 11 regions we think might be related to lupus, but those need more study."

The study is notable for its inclusion of several ethnic groups and results that show that the genes that cause lupus aren't always universal, said OMRF researcher Patrick Gaffney, M.D.

Using samples from a wide range of ethnic backgrounds, scientists found the genes IRF8 and TMEM39a were associated with lupus in European-

American, African-American, Gullah and Asian patients. A third gene named IKZF3 was only significant in African-American and European-American samples.

Lupus is a chronic autoimmune disease, caused by a combination of environmental and multiple genetic factors. The disease causes the immune system to become overactive, mistaking the body's own cells like they were bacteria or viruses and attacking them. Symptoms include fatigue, fever, rashes and joint pain. The Lupus Foundation of America estimates 1.5 million Americans have lupus. About 9 of every 10 lupus patients are women.

The massive undertaking has already turned up other discoveries, said Gaffney. So far the project has culminated in at least 15 published papers and several more are in the pipeline.

The next step will be studying the genes to find out what role they play in lupus, said Lessard.

"Identifying and characterizing these genetic risk factors in lupus will undoubtedly lead to improved diagnostics and therapeutics for this complex disease," said senior author and OMRF scientist Kathy Moser, Ph.D.

Lupus Foundation of America, Oklahoma chapter Executive Director Mannix Barnes said the discovery marks another significant step for patients.

"The importance of continued research for lupus is imperative to finding the cause and treatments for a disease that affects over 1.5 million Americans, mostly women," said Barnes. "I can honestly say from an executive viewpoint in an organization that fields thousands of calls annually from women affected by this disease, I hope research one day

will be able to put us out of business and start saving lives in return."

Provided by Oklahoma Medical Research Foundation