Four out of five people with autoimmune diseases are women. We finally know why

Millions of people have autoimmune diseases, such as multiple sclerosis or rheumatoid arthritis. But it’s estimated that four of every five people who have an autoimmune disease are women. For some disorders the ratio is even more skewed; for every nine women who have lupus there is one male patient, and for every nineteen female Sjogren’s syndrome patients, there is one male patient. Researchers may have finally found an answer to the puzzling question of why autoimmune disease strikes women far more often: their extra X chromosome.

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In autoimmune disease, patients develop antibodies that target their own biology. The researchers analyzed blood samples from autoimmune disease patients, and discovered many autoantibodies that were linked to Xist complexes. Some of the autoantibodies were unique to certain autoimmune diseases, and they could be useful in diagnostics.

“This every cell in a woman’s body produces Xist, but for several decades, we’ve used a male cell line as the standard of reference,” noted senior study author Howard Chang, MD, PhD, professor of dermatology and of genetics and a Howard Hughes Medical Institute investigator. “That male cell line produced no Xist and no Xist/protein/DNA complexes, nor have other cells used since for the test. So, all of a female patient’s anti-Xist-complex antibodies, a huge source of women’s autoimmune susceptibility, go unseen.”

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