X-INACTIVATION AND AUTOIMMUNE DISEASES

Women account for around 80% of all cases of autoimmune disease. A Cell paper (1) explains why.

Xist long non-coding RNA (lncRNA) is expressed only in females to randomly inactivate one of the two X chromosomes to achieve gene dosage compensation. Xist ribonucleoprotein (RNP) complex, comprising numerous autoantigenic components, is an important driver of sex-biased autoimmunity. The study was performed on mice, but the authors found important confirmation in humans, where human female patients with autoimmune diseases displayed significant autoantibodies to multiple components of XIST RNP. Thus, a sex-specific lncRNA scaffolds ubiquitous RNP components to drive sex-biased immunity.

1. https://www.cell.com/cell/fulltext/S0092-8674(24)00002-3?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0092867424000023%3Fshowall%3Dtrue