

Lupus and the microbiome – the flare



In a recent study, researchers have described the link between the growth of a specific gut bacterium, *Ruminococcus (blautia) gnavus*, to recurrent episodes of [systemic lupus erythematosus \(SLE\)](#), an autoimmune disease characterized by the immune system attacking the body's own tissues (Figure 1). The study observed bacterial blooms of *R. gnavus* occurring simultaneously with disease flare-ups in five out of 16 women with SLE, representing diverse racial backgrounds, over a span of four years. SLE involves damaging inflammation in various organs, particularly the kidneys, joints, skin, and blood vessels. Notably, four patients with *R. gnavus* blooms had severe cases of lupus nephritis, the most common form of the disease affecting the kidneys, while one exhibited severe inflammation in multiple joints.

The study also identified 34 genes that have established links to the growth of *R. gnavus* in individuals with inflammation. Additionally, researchers investigated the binding affinity of patients' immune system antibodies to structures in the bacterial wall, like how they respond to invading viruses. These antibodies exhibited a strong affinity to specific bacterial lipoglycan molecules known to trigger inflammation.

As [SLE](#) is an autoimmune disease that leads to widespread [inflammation](#) and long-term organ damage, this study provides a potential avenue for future treatments, particularly for lupus nephritis. It suggests that targeting the gut microbiome and

preventing imbalances such as Ruminococcal blooms through less-toxic antibacterial agents, probiotics, or dietary regimens could be a viable alternative to [immune-suppressing drugs](#). Such an approach could offer improved outcomes for patients by reducing reliance on immunosuppressive medications and focusing on rebalancing the gut bacterial population.

Journal article: Azzouz, D, et al., 2023. [Longitudinal gut microbiome analyses and blooms of pathogenic strains during lupus disease flares](#). *Annals of the Rheumatic Diseases*.

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