Recent work indicates that antigens originating from the microbiome may look, from the perspective of immune cells, like proteins found in the human body, and may therefore trigger an autoimmune response. In several studies, researchers have found that the B and T cells that attack the body bind human proteins as well as mimics of those proteins made by commensal bacteria.

**LUPUS:** Commensal bacteria from the mouth, skin, and gut produce an ortholog of the human protein Ro60. Some of these bacteria and bacterial Ro60 activated T cells from the blood of a patient with lupus. Ro60-specific antibodies from lupus patients also bound to bacterial Ro60, suggesting commensals could have a hand in activating antibody-producing B cells involved in the autoimmune disease.

**MULTIPLE SCLEROSIS:** T cells isolated from the cerebrospinal fluid of several multiple sclerosis patients reacted to both the human and the bacterial versions of the protein guanosine diphosphate (GDP)-L-fucose synthase. Researchers think it’s possible that gut bacteria that make the protein activate T cells that go on to attack the central nervous system.

**RHEUMATOID ARTHRITIS:** Several commensal gut bacterial proteins share sequence homology with two proteins isolated from rheumatoid arthritis patients’ blood and joint fluid. Antibodies and T cells from patients, but not healthy controls, reacted to both the human and bacterial peptides.