The mosaic of autoimmunity – everything is microbiome until proven otherwise.

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Autoimmune diseases are conditions in which the immune system damages normal components of the individual. Initially it was thought that autoimmune disease was the inevitable outcome of the presence of clones of lymphocytes with receptors that recognize self-antigens. Thus tolerance to self, the state of non-autoimmunity, was due to the absence of self-recognizing lymphocytes, the ‘forbidden’ culprits of autoimmune disease. Autoimmune diseases were found to be multifactorial in their etiology. For practical reasons these factors are classified into four categories: genetic, immune deficiencies, hormonal state and environmental causes.

During the last decade a new factor for autoimmunity has emerged: the microbiome. The body contains populations of bacteria especially in the GI tract. We have employed three mice models of autoimmune diseases:

1. NZB-W/SLE, genetic.
2. Collagen induced arthritis (CIA), an induced model of RA.
3. Colitis induced by chemicals.

We have treated the mice with Tuftsin-phosphorylcholine (TPC) produced from helminthes. Suppression of the diseases was associated with specific type from GI bacteria, while activity of the autoimmune conditions was characterized by completely separate bacteria. This result alludes to a future manipulation of active autoimmune diseases via the GI bacteria.