

Yongmei Li, PhD, University of Pennsylvania
“Cellular dynamics in mouse models of Sjögren’s syndrome”

Lay Abstract:

To investigate whether B-cell depletion would reduce salivary gland inflammation in Sjögren’s syndrome (SS), we will investigate such strategy in mice that are known to develop Sjögren’s syndrome. We will inject B-cell specific antibodies to deplete them in two murine models of SS. We will measure the impact of these antibodies on disease, such as autoantibody level in blood, salivary flow, and inflammation in the salivary glands of these mice. We will also genetically engineer B and T cells so that their temporal response to B-cell targeting antibodies may be studied over time. Findings from our proposed studies will provide information on whether B cell depletion can be an effective strategy for treating SS.

Scientific Abstract and Research Proposal:

B cells play an important pathogenic role in Sjögren’s syndrome (SS), and B-cell depleting strategy is under active clinical investigation for human SS. Previously we found that in an autoimmune murine model of SS, weekly injection of anti-CD79 antibodies can reduce serum level of autoantibodies and deplete ~80% peripheral B cells. To determine whether anti-CD79 antibodies would affect SS in mice, we will give 4 weekly IP injections of these antibodies to MRL/lpr and C57BL/6.NOD-Aec1Aec2, two autoimmune murine models of SS. Control group will receive injection of PBS or control antibodies. We will follow these mice for B and T cell numbers and repertoire diversity in lymphoid organs, serum autoantibody level, salivary function (in C57BL/6.NOD-Aec1Aec2) and inflammatory foci in salivary glands. To track the dynamic changes in B and T cells in tissues in response to anti-CD79 injections, particularly in salivary glands, we will transduce luciferase into B and T cells so that we can image them via bioluminescence in vivo over time. Information obtained from our proposed studies in murine models of SS will give us important basic information on B-cell depletion therapy in humans.