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Description of Research:

Undetected bacterial or viral infections elicit strong immune responses that can masquerade into autoimmune diseases. This has recently been proposed for primary biliary cirrhosis, a liver disease where individuals have signs of chronic immune responses against the ubiquitous xenobiotic bacterium *Sphingomonas*. Dr. Mattner's laboratory has created a mouse model of *Sphingomonas* infection that results in a liver disease similar to human primary biliary cirrhosis. Based on the identification of alpha-glycuronosylceramides, that replace lipopolysacchride (LPS) in the cell wall of *Sphingomonas*, as natural killer T (NKT) cell antigens, he could show that NKT cells provide help for autoantibody producing B cells and self-reactive disease transferring T cells. This mechanism is supported by several reports that NKT cells are strikingly absent from the blood and are redistributed to the liver in patients with primary biliary cirrhosis. Dr. Mattner plans to extent his studies to other liver diseases like primary sclerosing cholangitis and autoimmune hepatitis to test if similar mechanisms might apply as observed in primary biliary cirrhosis.

Collaborations:

Dr. Mattner will collaborate with Dr. Bezerra on the study of primary biliary cirrhosis.