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Title: *Epithelial Cells and Innate Lymphoid Cells Collaborative Role in the Pathogenesis of Primary Sjögren's syndrome*

Research Description:

We demonstrated for the first time that epithelial cells from the salivary glands of patients with primary Sjogren's syndrome express a pro-inflammatory protein the prostanoid receptor (CRTH2). We hypothesize that CRTH2 stimulation might play an important role in the perpetuation of the salivary gland inflammation in Sjogren's syndrome patients. CRTH2 stimulation attracts newly discovered white blood cells, innate lymphoid cells, which contribute to the inflammatory process. In this project we aim to investigate the role of CRTH2 and innate lymphoid cells in Sjogren's syndrome development using human samples from minor salivary glands biopsies and explore therapeutic targeting of this pathway in a mouse model of the disease.

Scientific Abstract:

Primary Sjögren's Syndrome (pSS) is a systemic autoimmune disease targeting lacrimal and salivary glands, but also involving other organs. Its immunopathogenesis and the active role of glandular epithelium is not entirely understood, thus limiting therapeutic approaches. We found for the first time, in human and mouse salivary glands, that ductal epithelial cells overexpress the prostanoid receptor CRTH2 during pSS autoimmunity. Importantly, CRTH2 blockade is a promising therapeutic strategy in asthma. Also, we found that innate lymphoid cells (ILCs), a subset of epithelium-associated leukocytes, infiltrate salivary glands and show pro-inflammatory properties in pSS and its murine model (autoimmune regulator knock-out). We hypothesize that ductal epithelial cell activation via CRTH2 ligation leads to ILCs activation and recruitment, thus perpetuating the inflammatory response. This translational project aims to investigate the pathogenic features of salivary epithelial cells and ILCs on pSS in humans and murine models, thus potentially leading to new therapeutic/diagnostic approaches.