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# The Cellular source and target of IL-21 in the K/BxN mouse model of rheumatoid arthritis

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Cytokines are major regulators of immune responses. Particularly, IL-21 is a pluripotent cytokine that regulates B cell and plasma cell differentiation, and is thought to be an autocrine factor for $T_{FH}$ and $T_H17$ differentiation, two T cell subsets implicated in autoimmunity. The relevant cellular source and target cells of IL-21 in autoimmunity have not been well characterized. We investigated this issue in the K/BxN mice by comparing the ability to induce arthritis of wildtype KRN T cells, IL-21 knockout KRN T cells that cannot produce IL-21, IL-21 receptor knockout KRN T cells or B cells that cannot signal by IL-21, or RORγt knockout KRN T cells that are defective in Th17 differentiation. Our results showed that IL-21 production by $T_{FH}$ but not $T_H17$ T cells is critical for arthritis development. However, IL-21 does not act on T cells as an autocrine factor but rather acts on B cells to form germinal centers and produce autoantibodies. These results clarify the roles of IL-21 signaling to T cells or B cells in autoimmune diseases and have implications in developing effective therapies for rheumatoid arthritis and other antibody-mediated autoimmune diseases.

## Biography

Haochu Huang has completed his Ph.D. from Johns Hopkins University and postdoctoral studies in the lab of Drs. Christophe Benoist and Diane Mathis at Harvard Medical School. His work focuses on tolerance and regulation of autoreactive T cells and B cells in normal immune system and autoimmune diseases.

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