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Roles of regulatory B cells in autoimmunity

Extensive studies have demonstrated the prominent functions of B cells in antibody production and antigen presentation. However, certain B cell subsets have been recognized as immune regulators through cytokine production. Accumulating data indicate that IL-10-producing B cells possess a regulatory function in the development of autoimmune diseases, but microenvironmental factors and/or cytokines involved in inducing regulatory B cell differentiation remain to be identified. B cell-activating factor (BAFF), a member of TNF family cytokines, is a key regulator for B cell maturation and function. Our recent studies have identified a novel function of BAFF in the induction of IL-10-producing regulatory B cells. BAFFinduced IL-10-producing B cells showed a distinct CD1d^{hi}CD5⁺ phenotype mainly derived from marginal-zone B cells, which possessed a potent function in inhibiting T cell activation and cytokine production. In mice with collagen-immunized arthritis and experimental Sjogren's syndrome, adoptive transfer of BAFF-induced IL-10-producing B cells markedly attenuated the disease severity and tissue damage of autoimmune diseases via suppression of Th17 cell response. Taken together, our findings have provided new insight in understanding the roles of BAFF and regulatory B cells in autoimmune pathogenesis, which may facilitate the development of therapeutic strategies for targeting autoimmune disorders.

Biography

Liwei Lu is an internationally recognized expert in the field of Autoimmunity. His research is focused on studying immune dysregulations in autoimmune diseases. During last ten years, his laboratory has been exploring novel strategies for the treatment of rheumatoid arthritis. His team was among the first to successfully treat autoimmune arthritis by targeting the cytokine B-cell activating factor in a preclinical study, which has significant therapeutic implications for the effective treatment of rheumatoid arthritis. He is the Councillor of Federation of Immunological Societies of Asia-Oceania and has served as the Chairman of Hong Kong Society for Immunology. He has published over 120 peer-reviewed papers in leading immunology and rheumatology journals.

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