Antibody targets and destroys cells implicated in systemic lupus erythmatosis

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Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that affects multiple organ systems. Autoantibodies, which are produced by B cells, contribute to development of SLE. Recent studies have also shown that type 1 interferons (IFNs) and associated inflammatory molecules are highly expressed in serum from SLE patients. Specialized cells called plasmacytoid dendritic cells (pDCs) primarily produce type 1 IFNs and may represent a therapeutic target for SLE therapies.

In this issue of *JCI Insight*, research groups led by Ian Wicks of the University of Melbourne and Nicholas Wilson of CSL Limited developed an antibody (CSL362) directed against the surface molecule CD123 that targets and depletes pDCs and other cells implicated in SLE. CD123 was found on the surface of pDCs and basophils in blood from both healthy volunteers and SLE patients.

CSL362 depleted these populations in whole blood and reduced production of type 1 IFN and type 1 IFN-induced genes, while also preventing expansion of antibody-producing cells. Importantly, this antibody effectively depleted pDCs and basophils in non-human primates and reduced induction of type 1 IFN-associated genes in the peripheral blood cells of these animals.

Further studies will be required to determine if this antibody will benefit patients with SLE.

More information: Shereen Oon et al, A cytotoxic anti-IL-3Rα

antibody targets key cells and cytokines implicated in systemic lupus erythematosus, *JCI Insight* (2016). DOI: 10.1172/jci.insight.86131