**POSTER PRESENTER**

**POSTER #5**

**THE ROLE OF FCGR2B IN REGULATING AUTOREACTIVE PLASMA CELLS IN LUPUS**

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**BACKGROUND:** Systemic lupus erythematosus *(SLE)* is an autoimmune disease

in which the body’s immune system attacks healthy tissue. There is currently no cure for SLE. A mutation in the gene *Fcgr2b* has been associated with lupus in humans. The exact mechanism of Fcgr2b in the regulation of autoantibodies in SLE is currently unclear. The purpose of the current study is to examine the role of Fcgr2b in its regulation of autoreactive plasma cells.

**METHODS:** We immunized conditional CD19-cre Fcgr2b knockout (KO) mice to propagate an increase in autoantibodies by inducing a cross-reactive germinal center response to DNA. We analyzed the presence and quantity of autoreactive and non-autoreactive plasma cells using flow cytometry. We quantified anti-DNA IgG antibodies in serum using an enzyme-linked immunosorbent assay (ELISA).

**RESULTS:** At 13-15 weeks, there was a significant increase in autoreactive IgG plasma cells in KO versus controls. This finding was only specific to IgG. We observed a significant increase in the total subset of IgG plasma cells in the KO in this cohort. A similar trend was found at day 17 in a different cohort of mice. In the ELISA, there appeared to be an increasing trend of anti-DNA antibodies in the KO compared to the controls over a period of 8 weeks and 2 weeks.

**CONCLUSIONS:** The increase in IgG autoreactive plasma cells in Fcgr2b KO mice suggests aberrant plasma cell differentiation in the absence of a selection defect. The findings are specific to IgG, suggesting a regulatory role of Fcgr2b in the germinal center pathway. Further investigation and ELISA replication will be conducted to confirm a difference in production of autoantibodies in serum. Further research is necessary to elucidate the mechanism of Fcgr2b in plasma cell differentiation to identify therapies and treatments in patients with SLE.

**CONTENT CATEGORY:** Basic and translational science.

**KEYWORDS:** *Systemic lupus erythematosus, autoimmunity, Fcgr2b, germinal center, plasma cells*