Background and aims EZH2 is an epigenetic regulator that trimethylates lysine 27 of histone 3 (H3K27me3). We have previously suggested that increased EZH2 might be mediating pro-inflammatory epigenetic reprogramming of naïve CD4+ T cells as an early event in lupus flares. Here we examined how overexpression of EZH2 affects the DNA methylome and function in CD4+ T cells.

Methods Naïve CD4+ T cells were isolated from lupus patients and healthy controls. EZH2 was overexpressed, and genome-wide DNA methylation changes were evaluated. Gene expression and miRNAs were assessed by qPCR while protein expression was examined by Western blotting. A cell adhesion assay was used to assess adhesion of T cells to human microvascular endothelial cells (HMVEC).

Results EZH2 expression and H3k27me3 were increased in naïve CD4+ T cells in lupus compared to healthy controls. Both miR-26a and miR-101, which regulate EZH2, were decreased. DNA methylation analysis identified 156 hypomethylated and 168 hypermethylated CpG sites in naïve CD4+ T cells transfected with EZH2. Genes involved in leukocyte adhesion and migration, such as F11R encoding JAM-A (junctional adhesion molecule A), and SELPLG encoding PSGL-1 (P-select glycoprotein ligand 1), were hypomethylated. Over-expression of EZH2 resulted in ~2-fold increased adhesion of CD4+ T cells to endothelial cells. Pre-incubation of EZH2-transfected CD4+ T cells with neutralising antibodies against JAM-A significantly blunted cell adhesion.

Conclusions We uncovered an important role for EZH2 in T cell adhesion. EZH2 overexpression results in hypomethylation of JAM-A, which might increase the migratory ability of T cells and contribute to aggressive T cell extravasation in lupus.

Background and aims Very rare X chromosome aneuploidies in lupus and Sjögren’s syndrome or SLE, and may identified to be therapeutic target for SLE.

Methods In the present study, we investigated on the level of IL-25 and IL-27 in systemic lupus erythematosus.

Results From the results, we found that SLE-LN and SLE had the higher level of IL-25, IL-35, IL-2, IL-4, IL-5, IL-6 and IL-10 among Malaysian Malay female SLE population and the possible association to disease severity leading to lupus nephritis. In the present study, SLE group divided into two categories, one is SLE with Lupus Nephritis (SLE-LN) and one with SLE alone comparing to normal control. ELISA method were used to measure the level of cytokines.

Conclusions This suggest IL-5 and IL-25 as beneficial markers for SLE disease activity.