**Results** Then, anasarca and nephrosis was improved and S-Cr was decreased to 1.20 mg/dL in proportion to the reduction in activated Th17 cells in PD.

**Conclusions** Although recent studies have begun to shed light on the role of IL-17 in the pathogenesis of SLE, there is no convincing evidence in actual patients. In this case, improvement of disease activity of SLE was correlated with the decrease of activated Th17. This is the first report that the IL-17-targeted therapy for SLE was shown to be effective in a patient skewing towards Th17-phenotype.

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**Background and aims** Besides their outstanding antimalarial activity, artemisinin and its derivatives also possess immunosuppressive activities and are clinical used to treat SLE. β-aminoarteether maleate (SM934), a water soluble artemisinin derivative, got the approval documents authorised by Chinese FDA for clinical trials. This study investigated the curative effects of SM934 on lupus-prone mice and explored its underlying therapeutic mechanisms.

**Methods** *In vivo*, SM934 was given orally to female NZB/W F1 and MRL/*lpr* mice; renal injury, peripheral lymphoid organ disease and serological changes were evaluated. Meanwhile, correlative pathological mechanisms were studied using different aged mice. Besides, the effects of SM934 on human PBMCs were also assessed.

**Results** We demonstrated that SM934 treatment could significantly improve SLE syndrome in lupus-prone animal models, including delayed the progression of glomerulonephritis; ameliorated proteinuria and renal lesion severity; increased the

survival rate; decreased levels of BUN and serum anti–double-stranded DNA antibodies. Furthermore, clinical improvement was accompanied with decreased Th1-related anti- dsDNA IgG2a and IgG3 Abs, serum IL-17, and increased Th2-related anti-dsDNA IgG1 Ab, serum IL-10 and IL-4. Moreover, SM934 could significantly inhibit both of Th1 and Th17 responses, elevate Treg percentage and lower the percentage of $CD3^+$ $B220^+$ $CD4^-$ $CD8^-$ (double negative) T cells in MRL/*lpr* mice. We further elucidate that SM934 treatment restored the compartment of B cells in the spleen of MRL/*lpr* mice by increasing quiescent B cells, maintaining germinal centre B cells, decreasing activated B cells and reducing PCs.

**Conclusions** This work provides new evidence and clues for research about artemisinin compounds in the field of autoimmune diseases.

## Other basic science

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**Background and aims** Oestrogen, a natural immunomodulator, regulates the development and function of diverse immune cell types and has been implicated in lupus development.

**Methods** To determine the regulatory role of oestrogen on neutrophil development and function, we treated B6 mice with placebo- or oestrogen implants for 6–8 weeks, and then analysed splenic neutrophil serine proteases (NSPs, such as
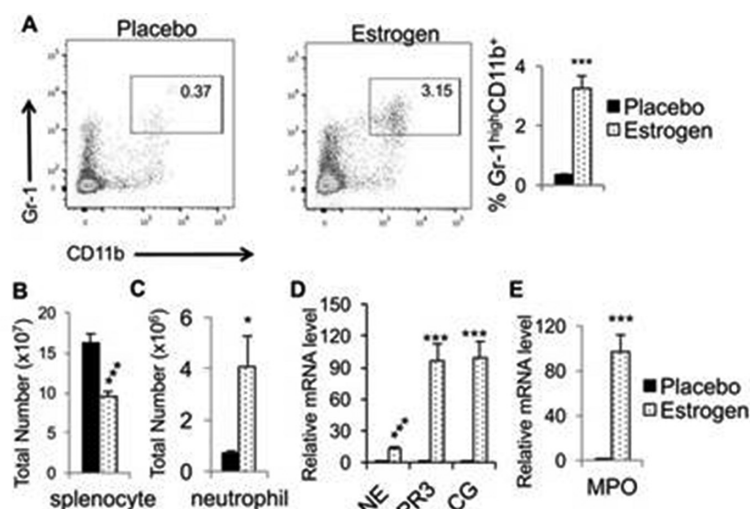


**Abstract 112 Figure 1** Estrogen treatment increasesneutrophil number, NSP and MPO expression in wild type B6 mice. (A) Flow cytometry analysis of splenic neutrophil percentage in placebo-and estrogen-treated B6 mice. (B)The total splenocytes count in placebo- and estrogen-treated mice. (C) The total CD11b*GR1* splenic neutrophilcounts in placebo- and estrogen-treated mice. (D and E) Real-time RT-PCR analysis the expressoin of NSPs (D), and MPO (E) in splenocytes from placebo- and estrogen- treated mice. The graphs show means±SEMs (n≥ 4). Unpaired students *t*tests (placebo vs estrogen) were performed.*, $p < 0.05$;**, $p < 0.01$; and ***, $p < 0.001$.