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.

DEVELOPMENT OF ARTEMISININ ANALOGUE ANALOG SM934 IN THE TREATMENT OF SYSTEMIC LUPUS ERYTHEMATOSUS

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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.

INCREASED NEUTROPHILS AND NEUTROPHIL SERINE PROTEASES IN THE SPLEENS OF ESTROGEN-TREATED C57BL/6 MICE AND IN SEVERAL STRAINS OF SPONTANEOUS LUPUS-PRONE MICE

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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 NPS, D, and MPO) 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.

Abstract 112 Figure 1 Estrogen treatment increases neutrophil 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 neutrophil counts in placebo- and estrogen-treated mice. (D and E) Real-time RT-PCR analysis the expression of NSPs, D, and MPO in spleenocytes from placebo- and estrogen- treated mice. The graphs show means±SEM (n ≥ 4). Unpaired students t tests (placebo vs estrogen) were performed. *, p<0.05; **, p<0.01; and ****, p<0.001.
Increased neutrophil percentages, NSPs, and MPO expression in the spleen cells of three different murine lupus strains. The graphs on left panel show the summary of flow analysis of neutrophil percentage in the spleens of MRL-lpr (A), B6-lpr (B), and NZBWFI (C). The graphs on right panel summarized the real-time RT-PCR analysis of the relative expression levels of NE, PR3, CG, and MPO in the splenocytes of

Either depletion of NSPs in vivo or depletion splenic neutrophil in vitro has obvious effect on estrogen-mediated promotion of inflammatory molecules. (A-E): The splenocytes from placebo and estrogen-treated wild type (WT) and NSP−/− knock out mice were simulated with LPS to measure the production of IFNγ (A, LPS 6 hours), IL-6 (B, LPS 24 hours), MCP-1 (C, LPS 24 hours), and inflammatory molecule NO (D, LPS 48 hours). The expression iNOS protein levels in activated splenocytes (LPS placebo-and estrogen treated B6 mice were treated with anti-mouse Ly6G antibody to deplete neutrophils, and then simulated with LPS for 24 hours to measure IFNγ (F), IL-6 (G), and MCP-1 (H) production. The graphs show means±SEMs (n≥ 3). Unpaired student t tests (No Ab vs anti-Ly6G) were performed; *p < 0.05; **p < 0.01; and ***p < 0.001.
neutrophil elastase (NE), proteinase 3 (PR3), and cathepsin G (CG) and myeloperoxidase (MPO) expression by qRT-PCR. NE−/−/PR3−/−/CG−/− triple knockout mice and in vitro depletion of neutrophils approaches were performed to determine the role of NSPs and neutrophils in estrogen-mediated inflammatory responses. The splenic neutrophil and NSPs expression in lupus-prone MRL-lpr, B6-lpr and NZB/WF1 and their respective controls were also analysed.

**Results** Although oestrogen reduced total splenocytes number, it markedly increased the splenic neutrophil numbers, NSPs and MPO expression in B6 mice (Figure 1). Splenic neutrophils, NSPs and MPO were also significantly increased in MRL-lpr, B6-lpr and NZB/WF1 mice (Figure 2). Despite of the critical role of NSPs and neutrophils in inflammation, depletion of NSPs in vivo did neither affect oestrogen’s ability to increase in splenic neutrophils nor the induction of inflammatory mediators from ex vivo activated splenocytes, and depletion of splenic neutrophils in vitro had also no obvious effect on NSPs expression (due to the increase of NSPs in cells other than neutrophils) and LPS-induced IFNγ and MCP-1 (Figure 3).

**Conclusions** Overall, we demonstrated a remarkable commonality with regards to the increase of neutrophils and NSPs in the spleens of autoimmune-prone mice and estrogen-treated B6 mice.

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**Abstracts**

**113 EFFECT OF MICROPARTICLES DERIVED FROM PATIENTS WITH LUPUS ERYSITEMATOSUS SYSTEMIC (SLE) ON MODULATION OF MICRONAS 146A AND 126 IN A MONOCYTE CELL LINE**

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**Background and aims** Important miRNAs are involved in the modulation of immune functions and can be found in the intra- and extracellular environments, in circulation attached to RNA-binding molecules or packed in form of microparticles (MP). Given this, MP could have an important role in intercellular communication, modulation and expression of miRNAs in their target cells.

To establish whether MP of SLE patients can modulate the expression of miRNAs (miRNA 126, miRNA 146a) and their target molecule (interferon response factor 5, IRF5) in the monocyte cell line U937.

**Methods** MP obtained from serum of SLE and other autoimmune diseases (OAD) patients, and healthy controls were used as stimulus in the cell line U937 to evaluate their effect over: 1) The expression of membrane markers through flow cytometry, 2) content of miRNAs 126 and 146a through PCR and 3) expression of their target molecule, IRF5 by Western Blot.

**Results** We observed, a decrease in HLA-DR, CD18, CD119 and an increase of IL-6 in U937 stimulated with MP from healthy controls, patients with active and inactive SLE, as well as patients with OAD. Additionally, a positive effect over the expression of miR126 and a negative effect over the expression of miR146a were observed. IRF5 as a target of miRNA146, did not change after MP treatment independent of MP origin.

**Conclusions** Our results suggested that MP may have a regulatory effects, inducing a decreased expression of membrane molecules and miRNAs-146 levels, without effect in IRF5. In addition, MP increased levels of cytokines and miRNA-126, latter is related with the demethylation.