clonalities, cellular signaling and metabolic reaction pathways were studied based on SLE activity.

Results SLE patients with active disease had significantly lower CD14+CD16highCD68+HLA-DR+ and higher circulating CD3+CCR4+CX3CR1+CD45RO+CD27+cells in their PBMCs (See figures 1A to 1Y), and higher TCR diversity in inactive CD8+ T cells compared to those with inactive disease, coupled with downregulated Sirtuin and upregulated oxidative phosphorylation and EIF2 signaling pathways in CD8+ T cells and B cells. Upregulated keratin sulphate synthesis reaction was observed in activated B cells, monocytes and plasmacytoid dendritic cells while the reaction was downregulated in inactive CD8+ T cells in active SLE patients.

Conclusions An integrated analytical platform comprising high-dimensional cytometric analyses and RNA-seq demonstrated signatures that highlight the concerted and complex pathogenic signatures of non-classical monocytes, tissue-homing memory T cells and altered signaling/metabolic pathways of lymphocytes and myeloid cells in patients with active SLE.

LO-039 VITAMIN D3 MITIGATES IMMUNE SYSTEM ALTERATIONS CAUSED BY ACTIVATION OF MYELOID DENDRITIC CELLS IN SLE

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Background Systemic lupus erythematosus (SLE) is an autoimmune disease in which defective T cells, immune complex deposition, and other immune system alterations contribute to pathological changes of multiple organs and organ systems. Our aim was to investigate the effects of 1,25-(OH)2 vitamin D3 (VitD3) on the activation of myeloid dendritic cells (mDCs) by autologous DNA immune complex (DNA-IC), and the effects of VitD3 on immune system balance during SLE.

Methods We purified DNA-ICs from SLE patients and isolated peripheral blood mDCs before and after histone deacetylase3 (HDAC3) gene interference by siRNA. mDC was stimulated by DNA-ICs and/or VitD3. The expression of NF-κB subunit RelB detected by WB. TNF-α, IL-10 secretion was detected by ELISA respectively. The immune balance of Treg/Th17 cells was determined after the co-culture of homologous CD4+ T lymphocytes with different stimulators primed-mDCs.

Results Our in vitro studies indicated that DNA-ICs were internalized and consumed by mDCs. Further analysis indicated that VitD3 blocked the effects of DNA-ICs on RelB, IL-10, and TNF-α in mDCs. Co-culture of mDCs and CD4+ T cells indicated that VitD3 inhibited multiple processes mediated by DNA-ICs, including the proliferation of mDCs, downregulation of IL-10, and upregulation of TNF-α. Additional co-culture experiments indicated that VitD3 reversed the effects of DNA-ICs in regulating the percentages of CD4+CD127-Foxp3+ T cells and CD4+IL17+ T cells.

Conclusions Our results indicated that autologous DNA-ICs stimulated activation of mDCs during SLE, and that VitD3 inhibited the stimulatory effects of DNA-ICs and maintained the Treg/Th17 immune cell balance. These results suggest that VitD3 may have therapeutic value for treatment of SLE.