A171 CD4 T CELLS PRODUCING IL-10 HAVE A BENEFICIAL EFFECT IN MURINE LUPUS

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10.1136/ard.2010.149013.14

Background and objectives Systemic lupus erythematosus is a severe systemic chronic autoimmune disease and New Zealand black × New Zealand white (NZB/W) F1 mice are commonly used to study this disease. The role of interleukin 10 (IL-10) in lupus is controversial and needs to be clarified, especially in regard to the different cell types, which can produce IL-10. Here the authors analysed whether IL-10 producing CD4 T cells have a beneficial effect in murine lupus.

Materials and methods Lupus-prone NZB/W F1 mice were repeatedly high-dose tolerised with SmD1(83–119) and analysed for SmD1(830119)-specific CD4 cells producing IL-10. Function of IL-10 on autoantibody production was analysed in an in vitro assay based on ELISA. Young, healthy NZB/W F1 mice were preventively treated with whole CD4 T cells from SmD1(83–119)- tolerised NZB/W F1 mice. And finally old, diseased NZB/W F1 were treated with polyclonal CD4 IL-10+ T cells generated in vitro.

Results First, the authors detected SmD1(83–119)-specific CD4 IL-10+ T cells after their previously published SmD1(83–119) high dose tolerisation protocol and the authors were able to increase the number of these cells by an additional booster immunisation with SmD1(83–119), second, the authors showed that IL-10 has a suppressive effect on anti-dsDNA autoantibody production at least in vitro, third, the authors achieved a temporary beneficial effect on proteinuria course and autoantibody development by transfer of CD4 T cells containing up to 0.04% SmD1(83–119)-specific CD4 IL-10+ T cells from SmD1(83–119) high dose tolerised NZB/W F1 mice into untreated NZB/W F1 mice, and fourth, the authors were able to treat full blown lupus disease in old female NZB/W F1 mice with in vitro generated polyclonal CD4 IL-10+ T cells improving significantly the survival of these mice in contrast to a control transfer of in vitro generated polyclonal CD4 interferon γ+ T cells or phosphate-buffered saline treated control mice.

Conclusions The authors conclude that IL-10 produced by CD4 T cells has a beneficial effect in murine lupus, even in full-blown disease in old, severely ill lupus-prone NZB/W F1 mice. Therefore, treatment of lupus prone mice with this cell type is an interesting new approach.