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CD4+CD25+ 면역조절 T 세포에 대한 항원 자극 효과

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Antigen Priming Increases Frequency of Antigen Specific CD4+CD25+ Regulatory T Cells, rather than Augments Their Suppressive Potency

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Purpose : It is still controversial whether antigen priming can increase the suppressive potency of regulatory T cells (Tregs) or increase the frequency of antigen specific Tregs. Another issue at hand is the benefits of antigen-priming under tolerizing conditions versus simple antigen priming with regard to the enhancement of overall regulatory activity of Tregs.

Methods : To address these questions, we prepared alloantigen specific CD4+CD25+ Tregs from naive T cell receptor transgenic mice reactive to I-ABm12 (ABM) mice (naive Tregs), primed ABM mice which rejected Bm12 skin graft (primed Tregs), and ABM mice tolerized to Bm12 skin graft (tolerant Tregs). The frequency of alloantigen specific Tregs were compared among these three conditions. In vitro suppressive effects of these Tregs on a per cell basis were compared, and their in vivo suppressive effects on the rejection of Bm12 skin grafts were also assessed after adoptive transfer to C57BL/6 RAG1 knockout mice.

Results : The frequency of both alloantigen specific CD4+CD25+foxp3+ Tregs and CD4+CD25-foxp3+ Tregs significantly increased in lymph nodes of tolerized mice. These changes were less prominent in primed mice under a non-tolerant condition. In vitro suppressive potency of tolerant or primed Tregs was similar to that of naive Tregs on a per cell basis, as assessed by in vitro proliferation, survival, IFN-γ and IL-2 production. Bm12 skin graft survival rates were also similar among all three groups of Tregs, after co-adoptive transfer with CD4+ naive ABM T cells.

Conclusion : In conclusion, our data demonstrate that alloantigen priming under tolerant conditions, increases the frequency of alloantigen specific Tregs, rather than augments their individual suppressive potency.