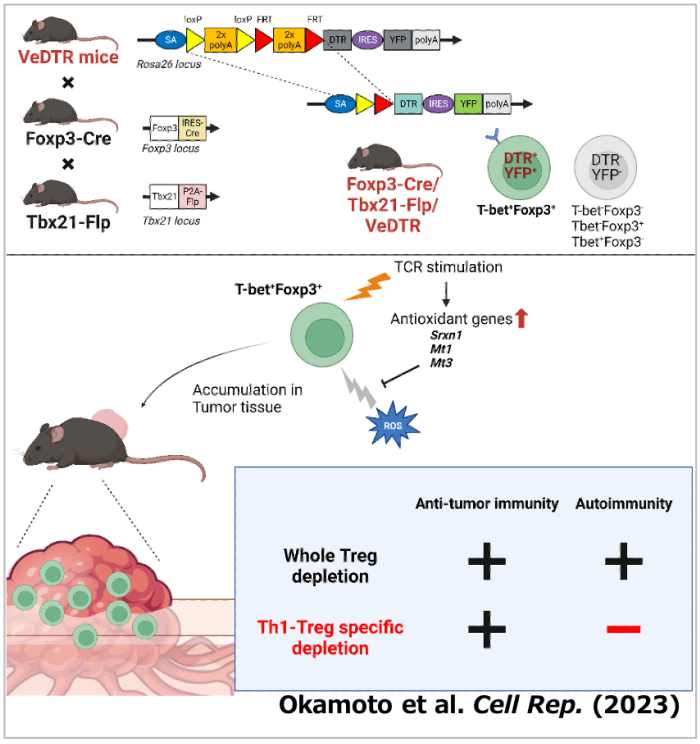
A genetic method specifically delineates Th1-type Treg cells and their roles in tumor immunity

Regulatory T (Treg) cells expressing the transcription factor (TF) Foxp3 also express other TFs shared by Th subsets under certain conditions. Here, to determine the roles of T-bet-expressing Treg cells, Masahiro Yamamoto and his group generated a mouse strain, called VeDTR mice, in which T-bet/Foxp3 double-positive cells were engineered to be specifically labelled and depleted by a combination of Cre- and Flp-recombinase-dependent gene expression control. Characterization of T-bet+Foxp3+ cells using the VeDTR mice revealed the high resistance under oxidative stress, which was involved in accumulation of T-bet+Foxp3+ cells in tumor tissues. Moreover, short-term depletion of T-bet+Foxp3+ cells only led to anti-tumor immunity but not autoimmunity, whereas that of whole Treg cells did both. Although ablation of T-bet+Foxp3+ cells during Toxoplasma infection slightly enhanced Th1 immune responses, it did not affect the course of the infection. Collectively, the intersectional genetic labeling/depletion of T-bet+Foxp3+ cells revealed their specific roles in suppressing tumor immunity.



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