C57BL/6-Tg(Tcra,Tcrb)2Litt/J transgenic mice (HHMI) (Jax. No. 027230)

T cells from these TCR transgenic mice recognize intestinal segmented filamentous bacteria (SFB) and predominantly become TH17 cells in SFB-colonized mice. These mice, derived from clone 7B8, are useful in studies of the relationship between commensal microbiota and organ-specific autoimmunity.

T-helper-17 (TH17) cells play a critical role in mucosal defense and autoimmune disease pathogenesis. They are most abundant in the small intestine lamina propria, where their presence requires colonization of mice with microbiota. Segmented filamentous bacteria (SFB) are sufficient to induce TH17 cells and to promote TH17-dependent autoimmune disease in animal models. These TCR transgenic mice (derived from clone 7B8) were created to investigate the mechanisms by which distinct bacteria induce the specificity of TH17 cells and foster tissue-specific inflammation. Animals express Vα15 /Vβ14 CDR3 sequences which recognize SFB epitope FSGAVPNK under the control of the natural TCRα and -β promoter/enhancer elements. SFB-specific T cells become TH17 cells in SFB-colonized mice. Over 90% CD4+ T cells from the small intestine are TCRVβ14+ by FACS analysis (as compared to a typical less than 10% for control mice).

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