Immunology Research - T cell Tools
Study the balance of Tregs and Th17 cellular dynamics

Study T cell dynamics in autoimmunity, inflammation and cancer
Regulatory T cells (Tregs) and T helper 17 cells (Th17) are CD4+ lymphocyte subtypes with opposing functions. The shift in the balance of the reciprocal partner populations of these two T cell subtypes is a checkpoint in autoimmunity versus inflammation. When the shift in T cell differentiation is biased towards Treg cells, this leads to dominant immunologic tolerance. When differentiation is shifted towards Th17 cells, this tips the balance toward inflammation. Tregs are characterized by the unique expression the forkhead box P3 transcription factor Foxp3 (also known as scurfyn). Th17 cells are a distinct T cell lineage that are IL-17-secreting CD4+ T cells and have a characteristic overexpression of the RAR-related orphan receptor gamma t (RORC/RORγt) nuclear receptor transcription factor.

Constitutively overexpress Foxp3

Inducibly overexpress Foxp3

Highlights
• Overexpress Human/Mouse Foxp3
• Overexpress Human RORC and Mouse RORγt
• Foxp3, RORγt and IL-17 reporters
• Stable overexpression Foxp3 and RORγt Jurkat T cell lines

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Overexpress Th17 RORγt and stable Jurkat overexpression Foxp3 and RORC/RORγt T cell lines

Foxp3, RORγt and IL-17 Transcription Reporters

Human Jurkat T cells were transduced with lentivirus for the Foxp3, RORγt and IL-17 promoter reporters. Transcription activation was tested using stimulation through the addition of PMA (5 ng/ml) and ionomycin (500 ng/ml). The schematics for the promoter reporter structures and transactivation data are depicted above.

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