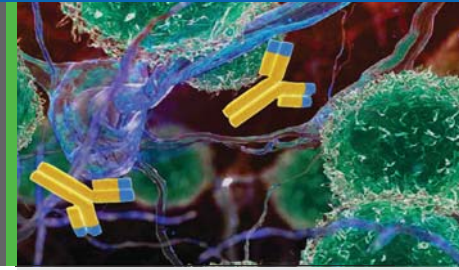


# Immunology Research - T cell Tools

Study the balance of Tregs and Th17 cellular dynamics



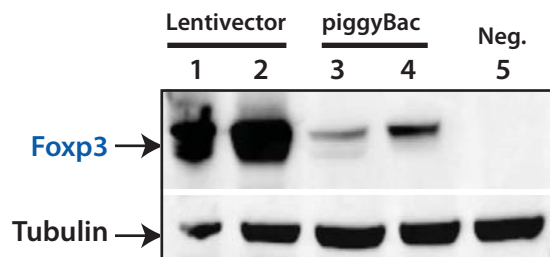
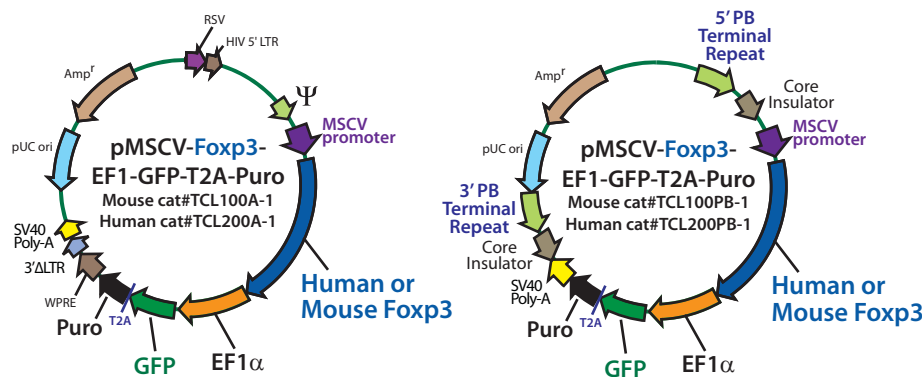
## Study T cell dynamics in autoimmunity, inflammation and cancer

Regulatory T cells (Tregs) and T helper 17 cells (Th17) are CD4<sup>+</sup> 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 scurf). Th17 cells are a distinct T cell lineage that are IL-17-secreting CD4<sup>+</sup> T cells and have a characteristic overexpression of the RAR-related orphan receptor gamma t (RORC/ROR $\gamma$ t) nuclear receptor transcription factor.

## Highlights

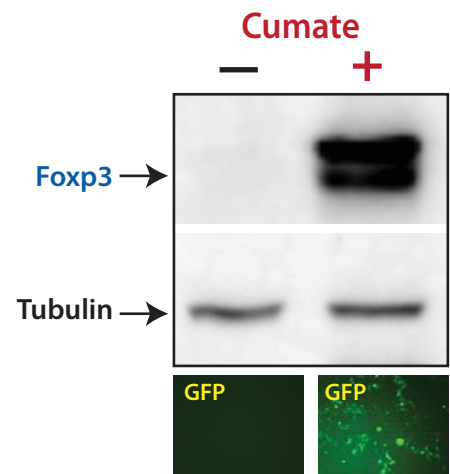
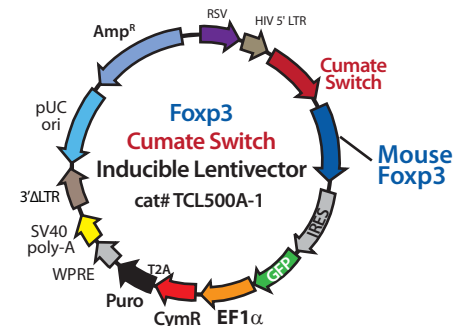
- Overexpress Human/Mouse Foxp3
- Overexpress Human RORC and Mouse ROR $\gamma$ t
- Foxp3, ROR $\gamma$ t and IL-17 reporters
- Stable overexpression Foxp3 and ROR $\gamma$ t Jurkat T cell lines

## Constitutively overexpress Foxp3

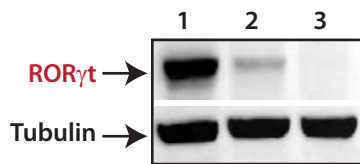
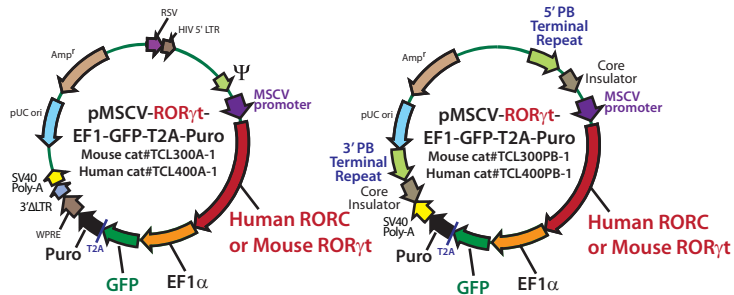


1. Human Foxp3 (TCL200A-1)
2. Mouse Foxp3 (TCL100A-1)
3. Human Foxp3 (TCL200PB-1)
4. Mouse Foxp3 (TCL100PB-1)
5. Untransfected Control lysate

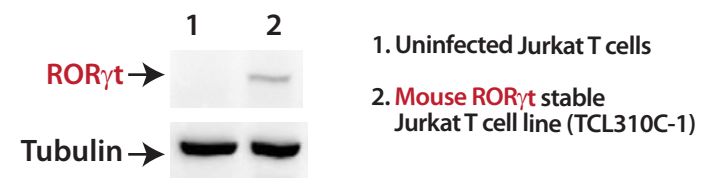
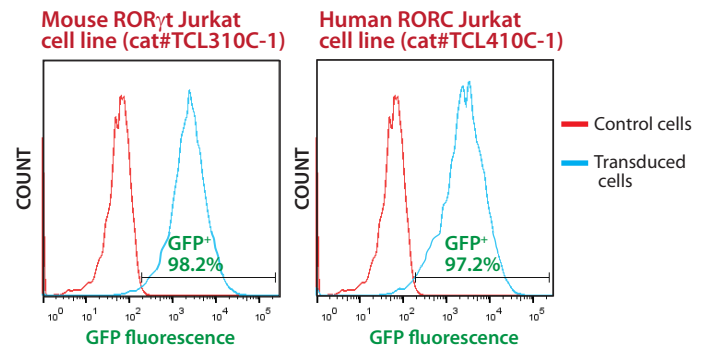
## Inducibly overexpress Foxp3



## Overexpress Th17 ROR $\gamma$ t and stable Jurkat overexpression Foxp3 and RORC/ROR $\gamma$ t T cell lines

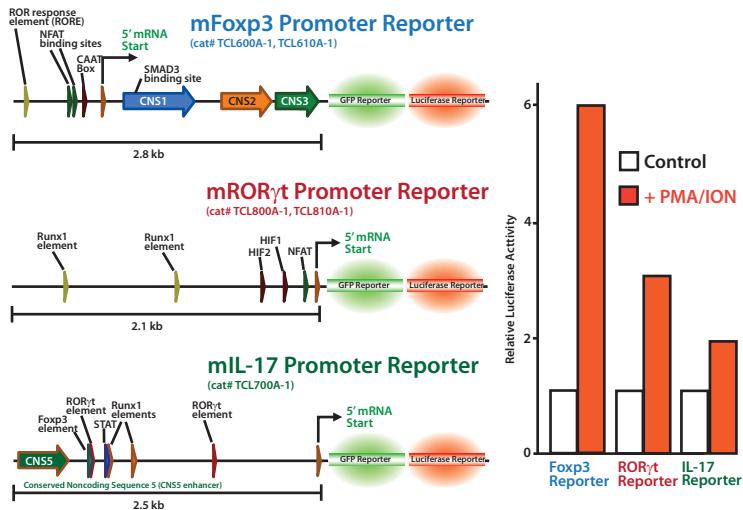


1. Mouse Lenti ROR $\gamma$ t (TCL300A-1)
2. Mouse piggyBac ROR $\gamma$ t (TCL300PB-1)
3. Untransfected Control lysate

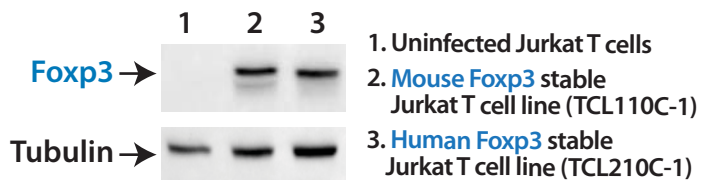
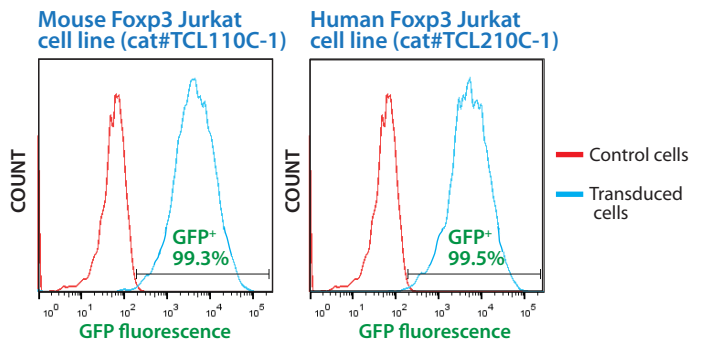


1. Uninfected Jurkat T cells
2. Mouse ROR $\gamma$ t stable Jurkat T cell line (TCL310C-1)

## Foxp3, ROR $\gamma$ t and IL-17 Transcription Reporters



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



1. Uninfected Jurkat T cells
2. Mouse Foxp3 stable Jurkat T cell line (TCL110C-1)
3. Human Foxp3 stable Jurkat T cell line (TCL210C-1)

Human Jurkat T cells were transduced with either Foxp3 or ROR $\gamma$ t packaged lentivirus and stable cell lines established using puromycin (2.5ug/ml) selection for 7 days. The resulting stable cell lines were evaluated for GFP levels using flow cytometry and cellular lysates tested using Western blots for the overexpression of Foxp3 and ROR $\gamma$ t. The Flow cytometry results and Western blot data are shown above.

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