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A combination of functional biomarkers improves identification of the tumor-specific reactive T cell repertoire

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Disclosures

Arianna Draghi, MD

I have no disclosures to declare.

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Introduction

How to differentiate tumor-specific reactive T cells from bystander T cells?

Bystander CD8⁺ T cells are abundant and phenotypic

Yannick Simoni, Etien

Nature **557**, 575–579(2

PD-1 identifies the patient-specific CD8⁺ tumor-reactive repertoire infiltrating human tumors

Alena Gros,[1] Paul F. Robbins,[1] Xin Yao,[1] Yong F. Li,[1] Simon Turcotte,[1] Eric Tran,[1] John R. Wunde Arnold Mixon,[1] Shawn Farid,[1] Mark E. Dudley,[1] Ken-ichi Hanada,[1] Jorge R. Almeida,[2] Sam Dar Daniel C. Douek,[2] James C. Yang,[1] and Steven A. Rosenberg[1]

Co-expression of CD39 and CD103 identifies tumor-reactive CD8 T cells in human solid tumors

Thomas Duhen, Rebekka Duhen, Ryan Montler, Jake Moses, Tarsem Moudgil, Noel F. de Miranda, Cheri P. Goodall, Tiffany C. Blair, Bernard A. Fox, Jason E. McDermott, Shu-Ching Chang, Gary Grunkemeier, Rom Leidner, Richard Bryan Bell & Andrew D. Weinberg

Nature Communications **9**, Article number: 2724 (2018) | Cite this article

CD137 Accurately Identifies and Enriches for Naturally Occurring Tumor-Reactive T Cells in Tumor

Activation-induced expression of CD137 permits detection, isolation, and expansi of the full repertoire of CD8⁺ T cells responding to antigen without requiring ificities

Qunnii Ye, De-Gang

DOI:

Cutting edge: CD69 interference with sphingosine-1-phosphate receptor fun cell retention

nley, Marie Bleakley, Philip D. Greenberg

Laura K Mackay [1], Asolina Braun [2], Bethany L , Sammy Bedou

Assessment of Antitumor T-Cell Responses by Flow Cytometry After Coculture of Tumor Cells with Autologous Tumor-Infiltrating Lymphocytes

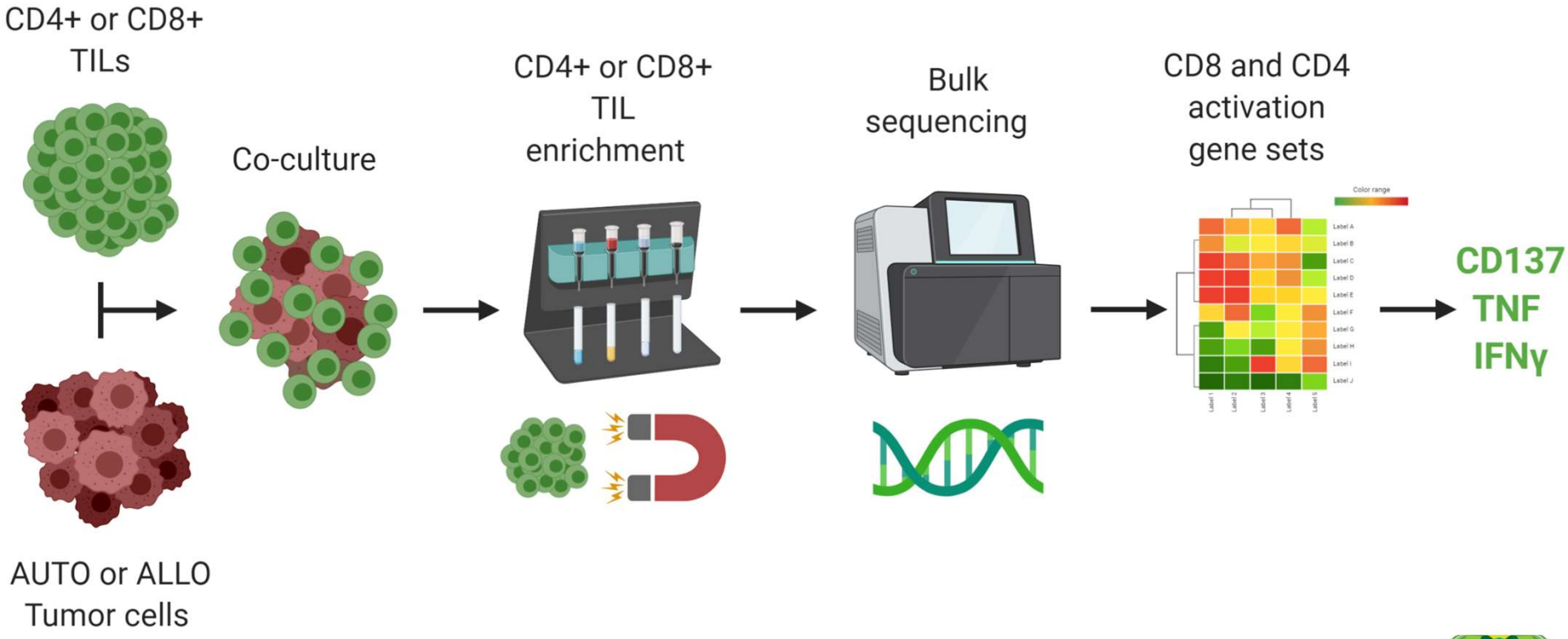
Sensitive and viable identification of antigen-specific CD8+ T cells by a flow cytometric assay for degranulation

de Coaña [1]

Michael R. Betts, Jason M. Brenchley, David A. Price, Stephen C. De Rosa, Daniel C. Douek, Mario Roederer, Richard A. Koup

Improve the detection of the repertoire of tumor-specific reactive T cells

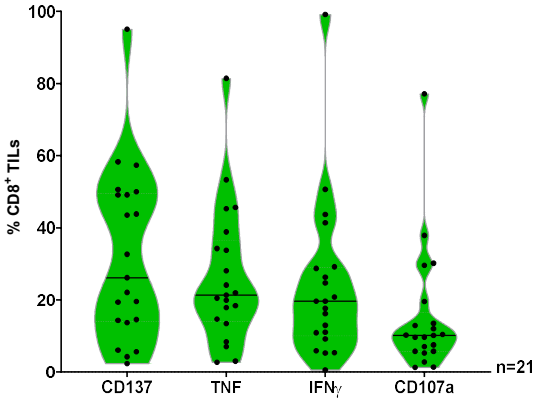
Methodology
In vitro tumor-specific activation setup

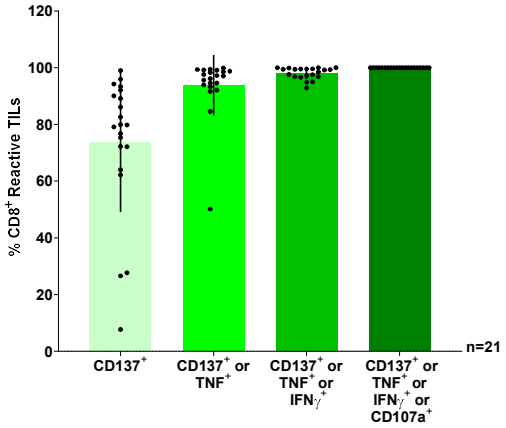


Created with BioRender.com

Combined intracellular detection of CD137, TNF and IFNγ improves the identification of tumor-specific reactive TILs *in vitro*

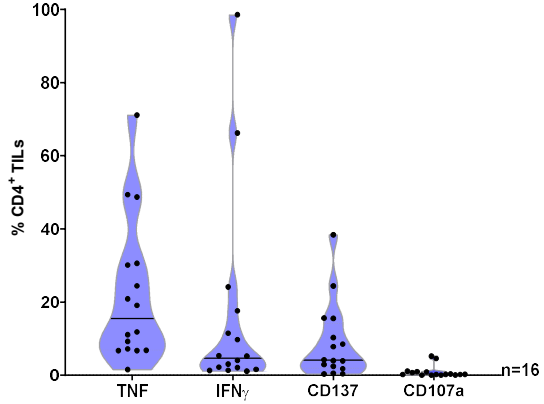
CD8⁺ TILs

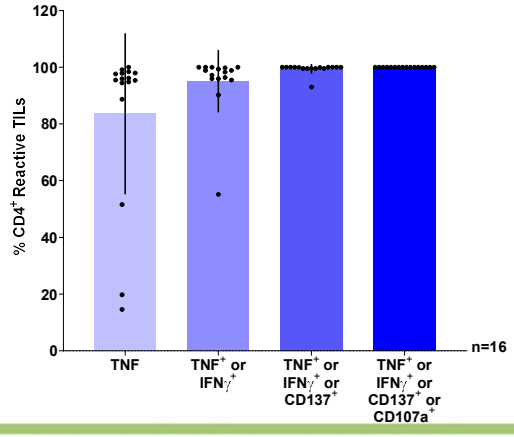




CD8⁺ Reactive TILs

CD4⁺ TILs

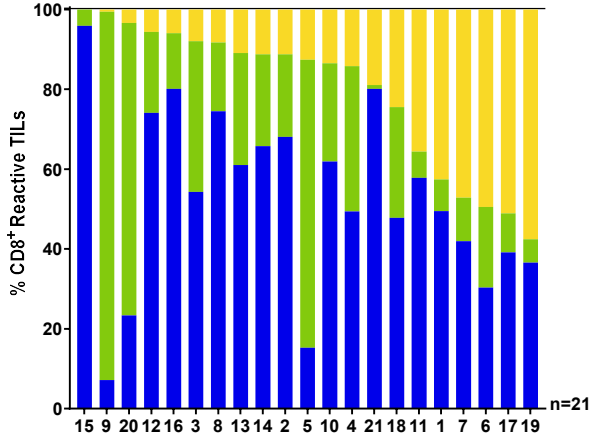




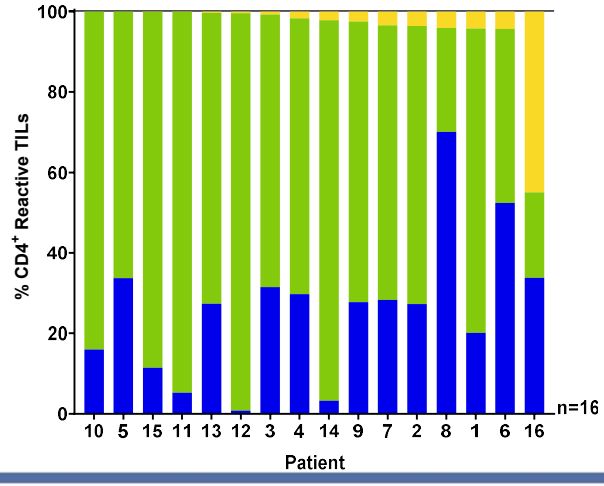
CD4⁺ Reactive TILs

Combined intracellular detection of CD137, TNF and IFNγ improves the identification of tumor-specific reactive TILs *in vitro*

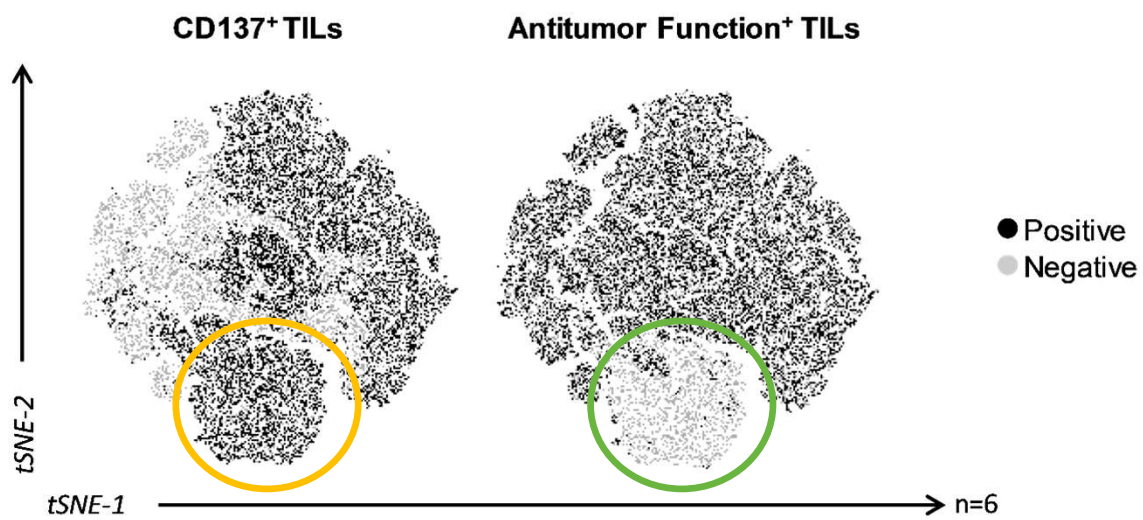
CD8⁺ Reactive TILs



CD4⁺ Reactive TILs

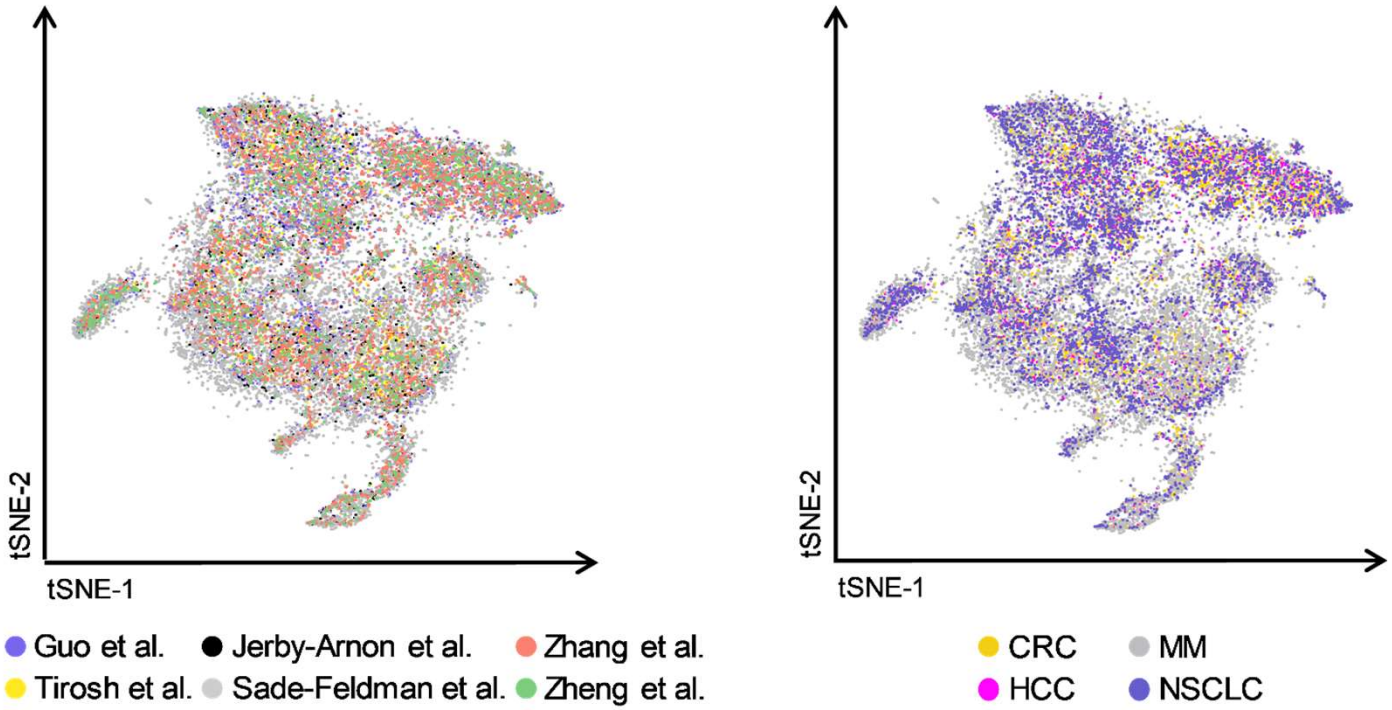


CD8⁺ Reactive TILs

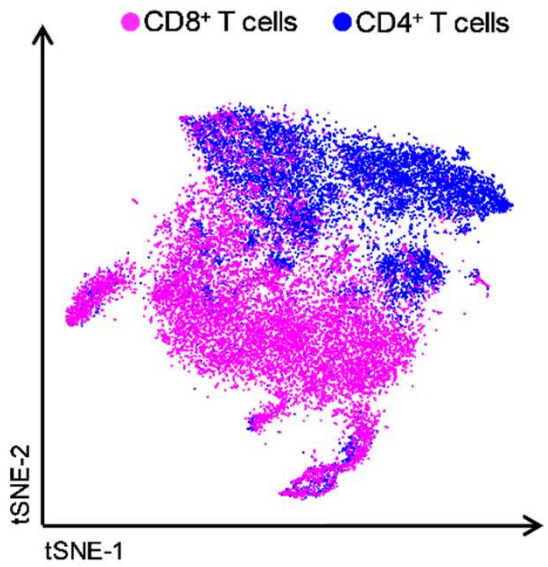


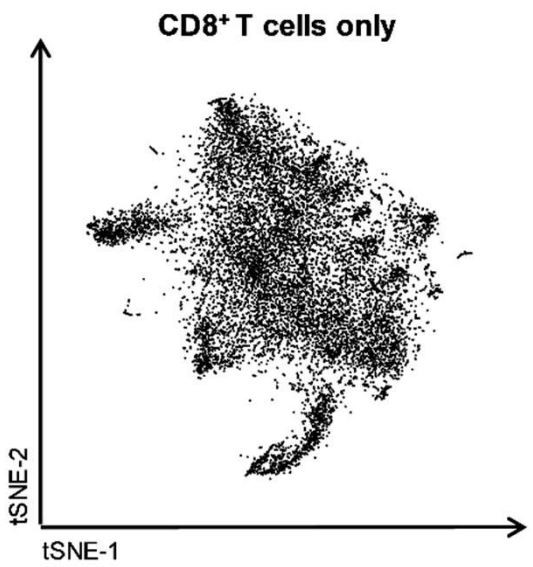
CD137⁺Antitumor Function⁻
CD137⁻Antitumor Function⁺
CD137⁺Antitumor Function⁺

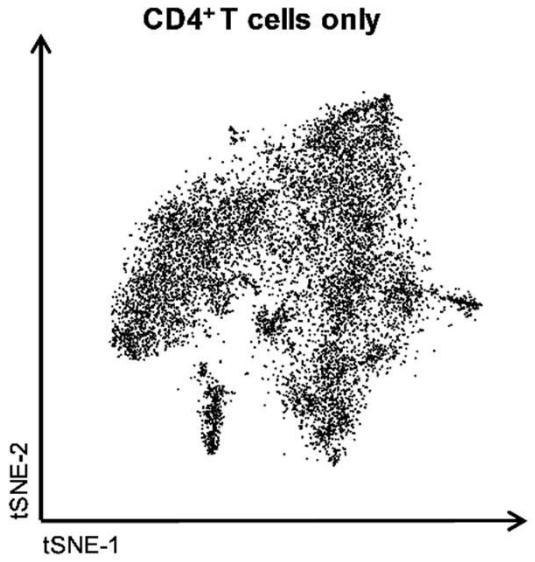
Methodology
Processing of T cell transcriptomics single-cell data from public repositories



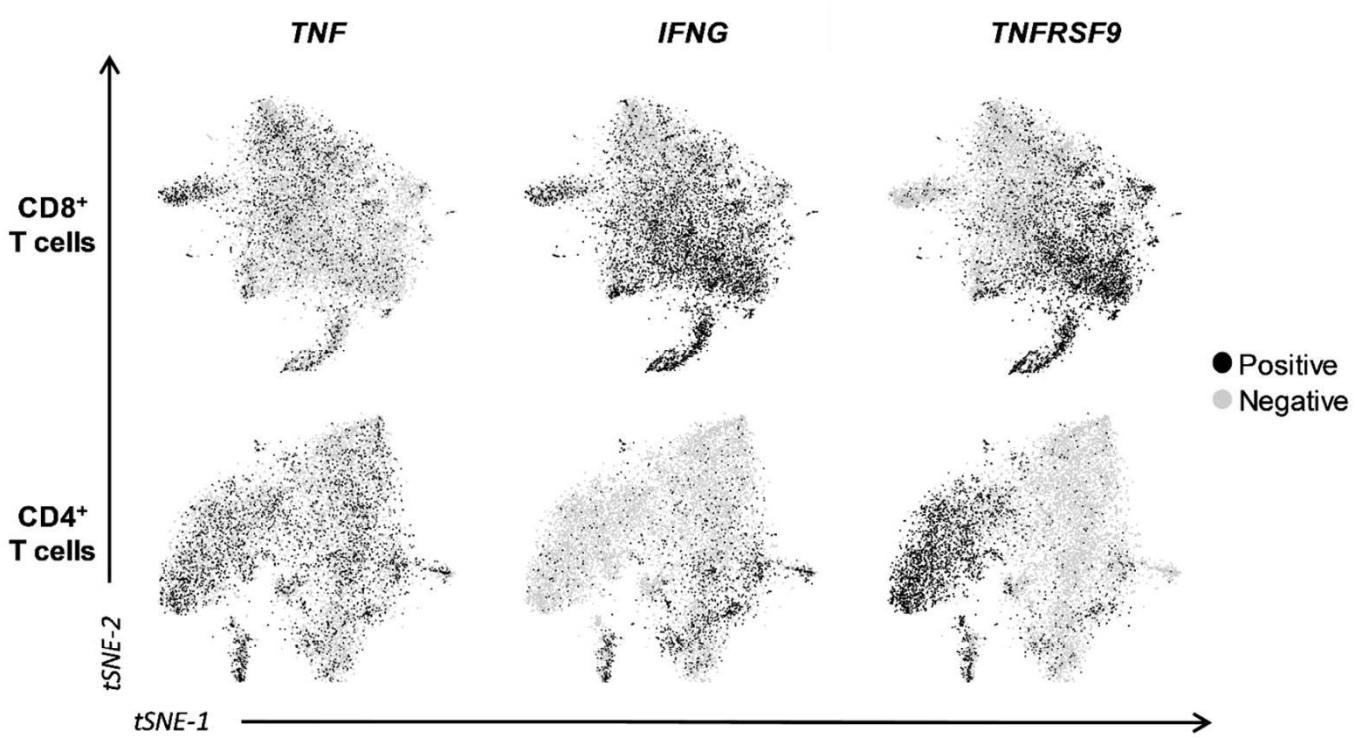
Methodology
Processing of T cell transcriptomics single-cell data from public repositories



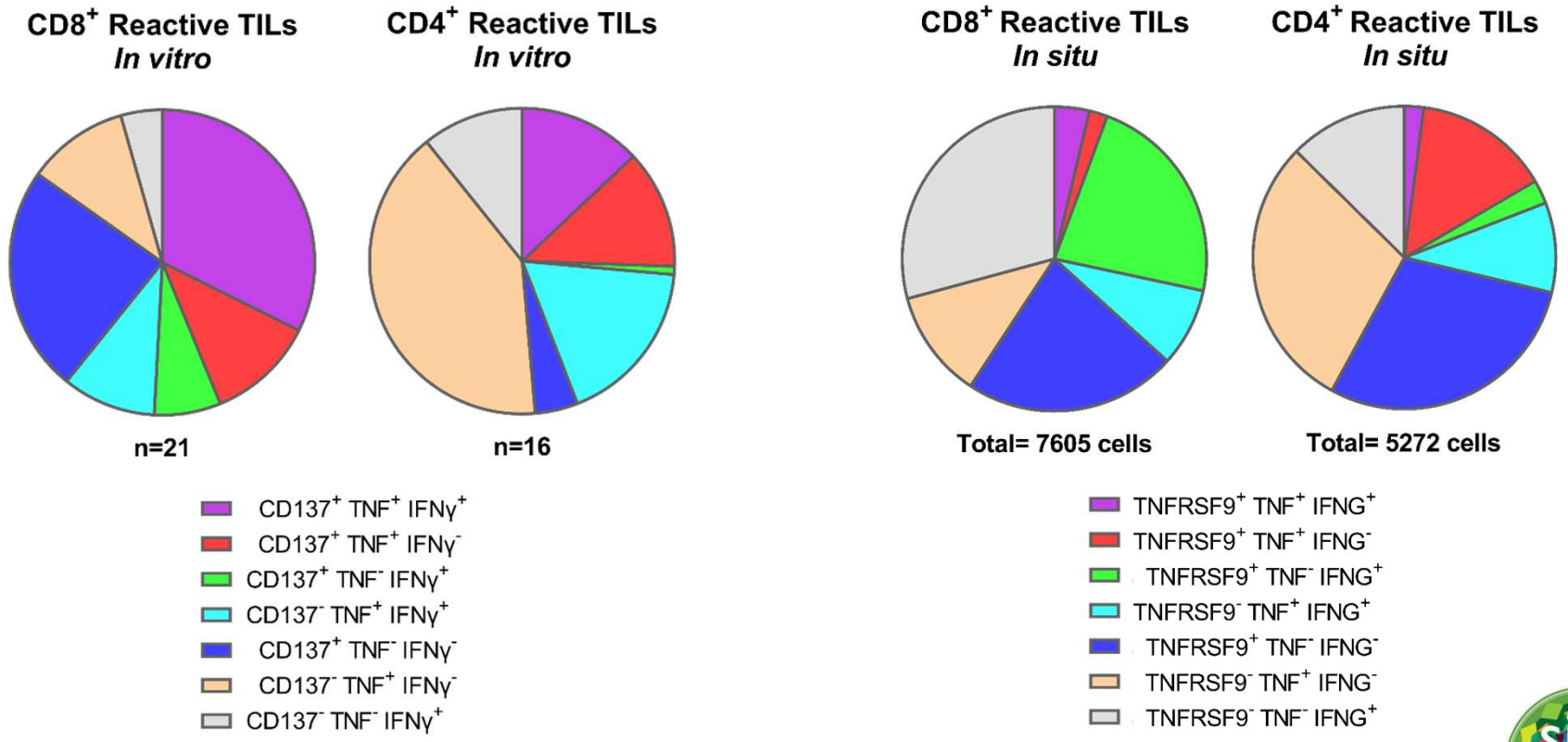




TNFRSF9, *TNF* and *IFNG* expression identifies multiple functional clusters of tumor-specific reactive TILs *in situ*

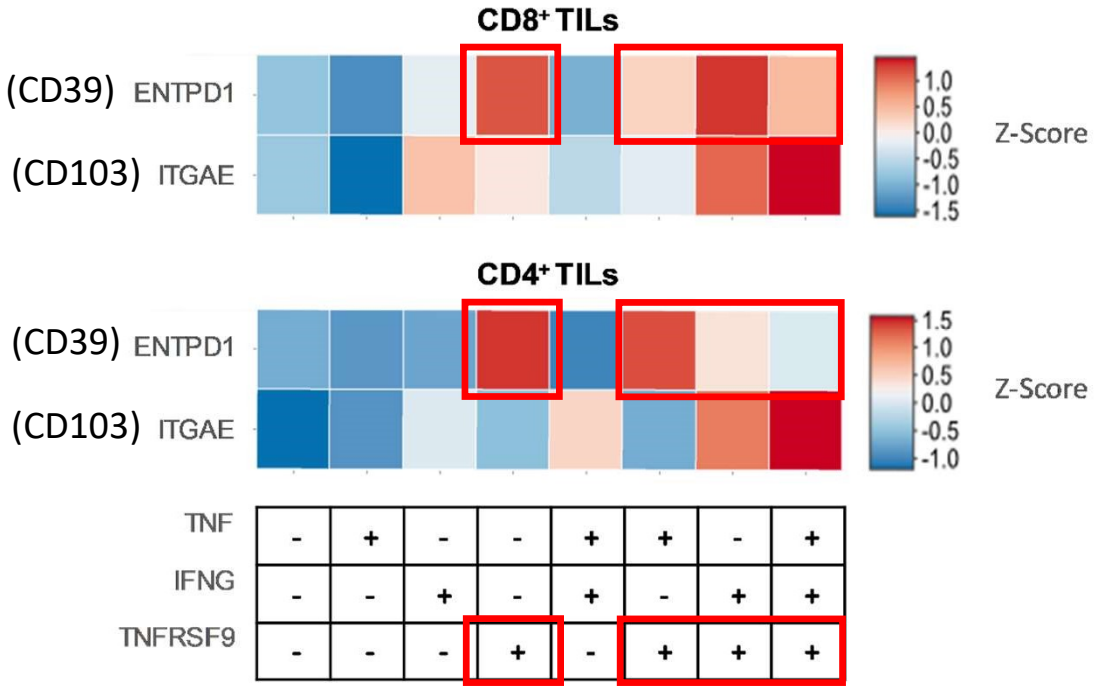


CD137 *(TNFRSF9),* TNF *(TNF)* and IFNγ *(IFNG)* expression identifies multiple functional clusters *in vitro* and *in situ*



Not Disclosed

ENTPD1 expression overlaps with *TNFRSF9* expression.



Take home message

The simultaneous detection of **CD137 (*TNFRSF9*), TNF (*TNF*) and IFNγ (*IFNG*)** is potentially able to identify the full **tumor-specific reactive T cell repertoire** while identifying multiple distinct functional clusters of tumor-specific reactive T cells ***in vitro*** and ***in situ***

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