

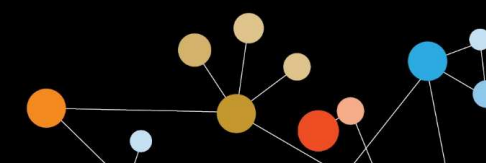
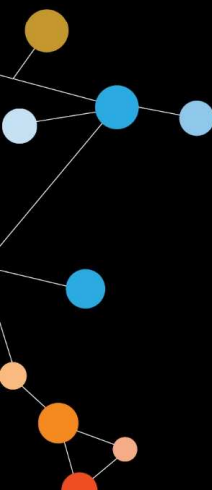


SITC 2016

NATIONAL HARBOR, MD
NOVEMBER 9-13, 2016



Society for Immunotherapy of Cancer





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Primer on Tumor Immunology and Cancer Immunotherapy™

Session I: Basic Immunology - A Brief Overview

Obstacles to Driving an Immune Response

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Society for Immunotherapy of Cancer

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Presenter Disclosure Information

Nicholas Arpaia, PhD

The following relationships exist related to this presentation:

No relationships to disclose

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Obstacles to Driving an Immune Response — Presentation Outline

- Immune-privileged sites
- Immune checkpoint molecules
 - Stimulatory
 - Inhibitory
- Regulatory T (Treg) cells
 - Development
 - Function

Mechanisms for suppressing immune responses

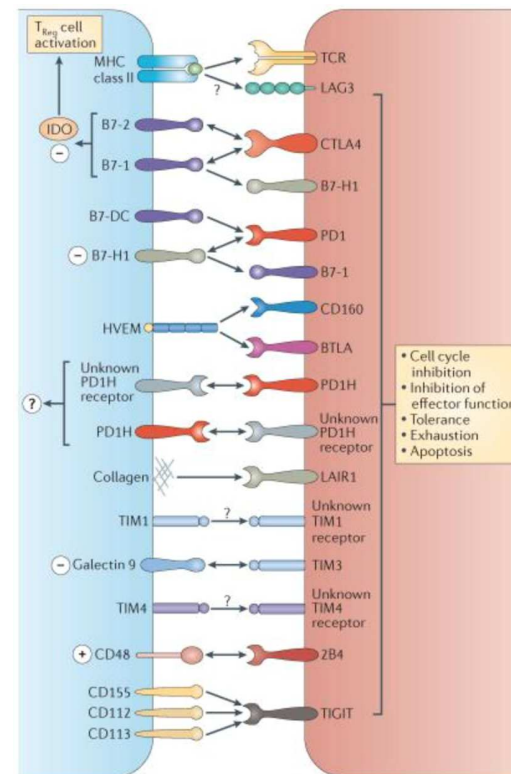
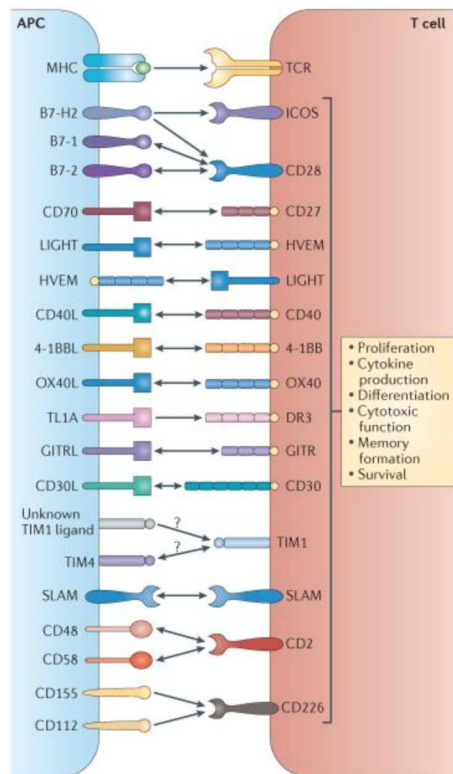
- Antigen availability/recognition
- Antigen presentation
 - T cell repertoire
- Active suppressive mechanisms
 - Stimulatory vs. Inhibitory Molecules
- Suppressive immune cells (subtypes and modes of action)
 - Myeloid-derived suppressor cells (MDSC)
 - Regulatory B cells (Breg)
 - Regulatory T cells (Treg)

Immunosuppression — limiting antigen availability/presentation

- Immune-privileged sites
 - Physiological barriers
 - Environmental characteristics
 - Impact on resident and/or recruited immune cells

Immunosuppression — active mechanisms suppressing immune activation

Stimulatory
Checkpoint
Molecules

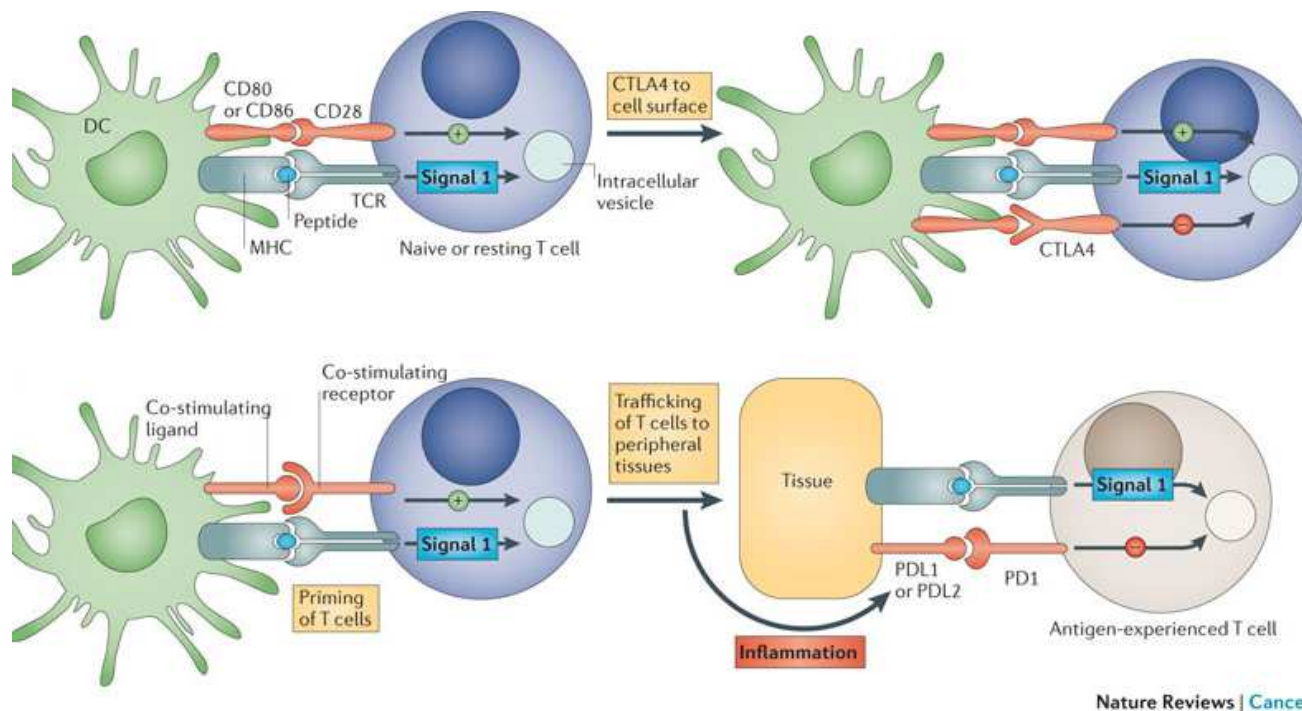


Inhibitory
Checkpoint
Molecules

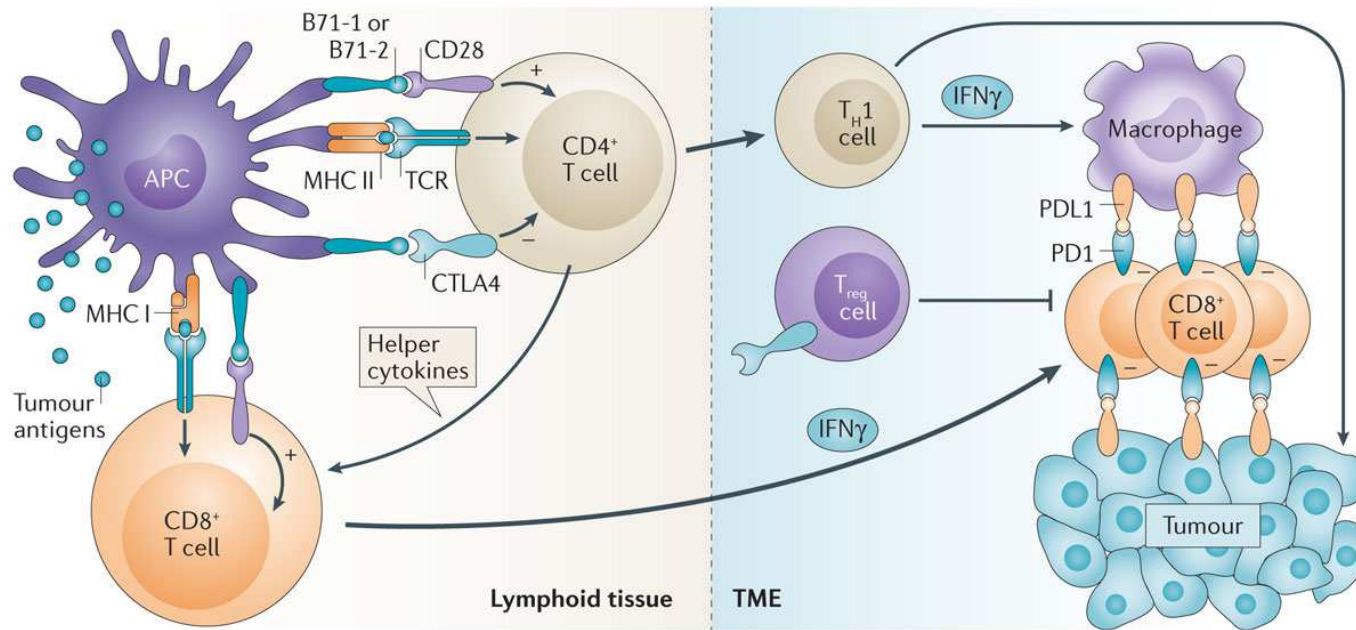
The tumor microenvironment — impact on immunosuppressive characteristics

- Decreased antigen presentation
 - Limited antigen processing/diversity
 - Reduced MHC expression
- Expression of ligands for inhibitory immune checkpoint molecules
 - PD-L1/PD-L2 upregulation
- Recruitment of suppressive immune cell subtypes

The tumor microenvironment — impact on immunosuppressive characteristics



Specialized immunosuppressive cell types — effects on anti-tumor immune responses

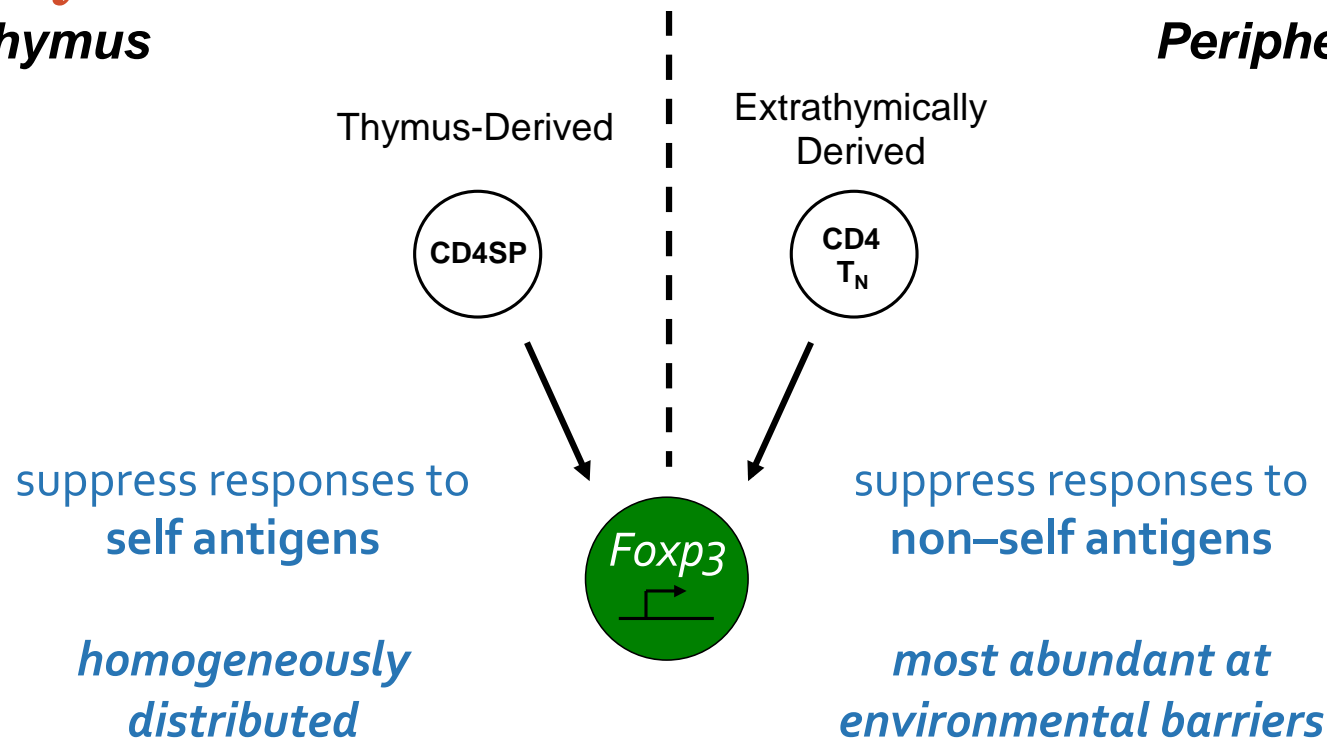


Nature Reviews | Cancer

Treg cells — two distinct developmental pathways

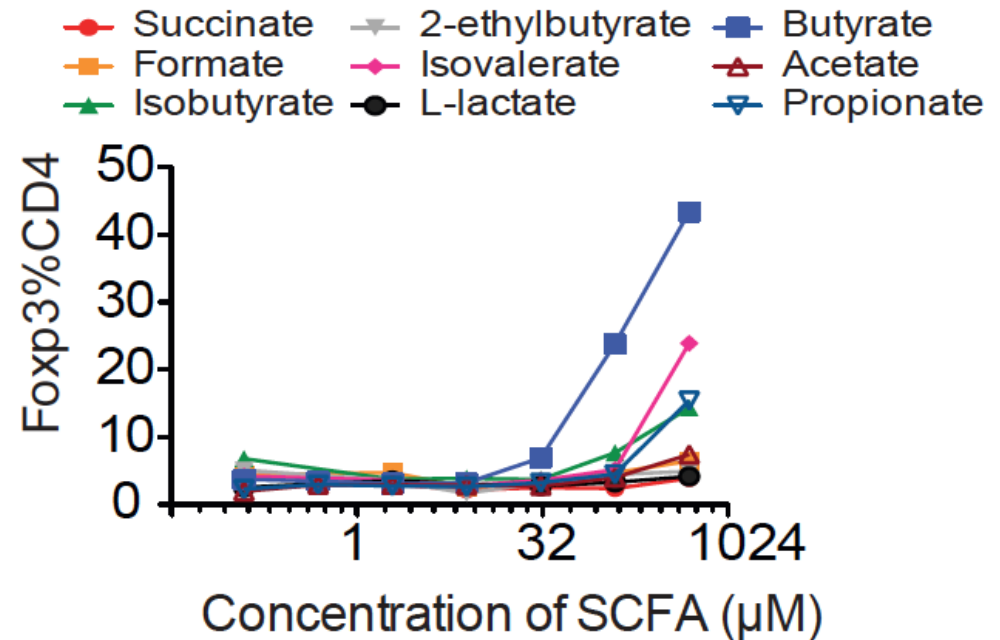
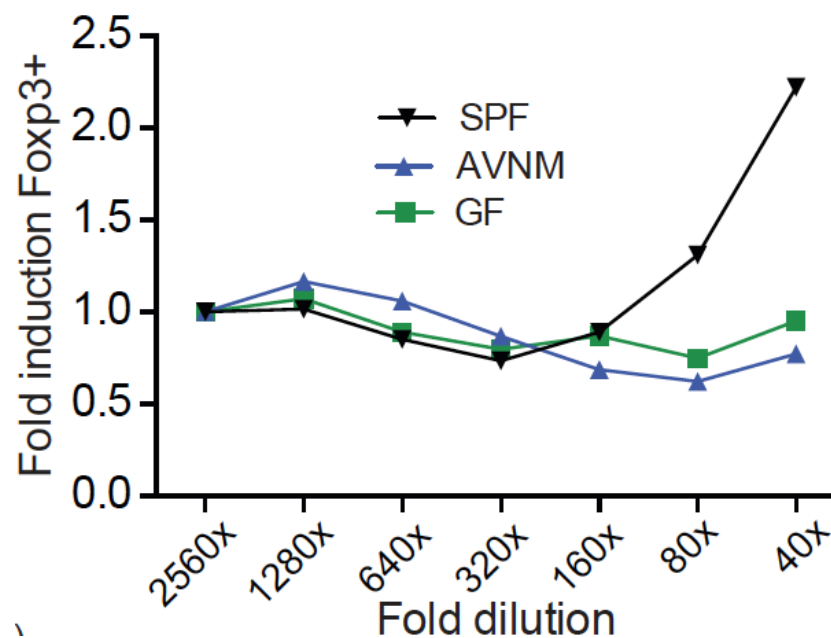
Thymus

Periphery

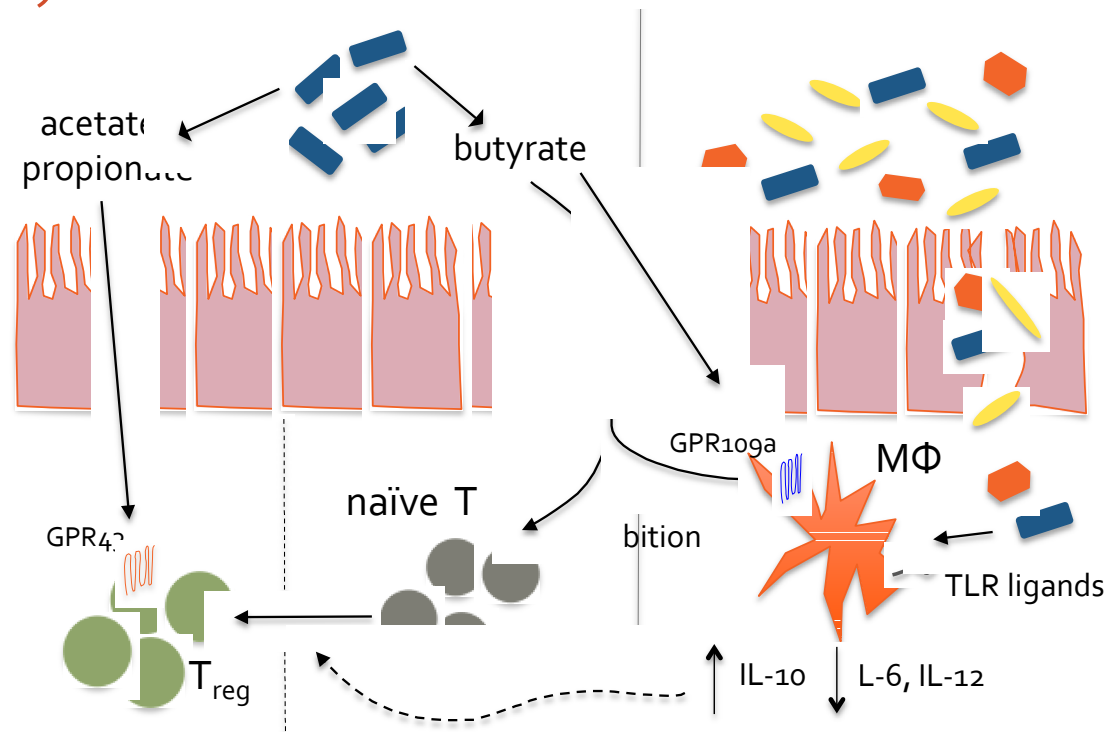


ADVANCING CANCER IMMUNOTHERAPY WORLDWIDE

Treg cells — two distinct developmental pathways, induction at mucosal barriers

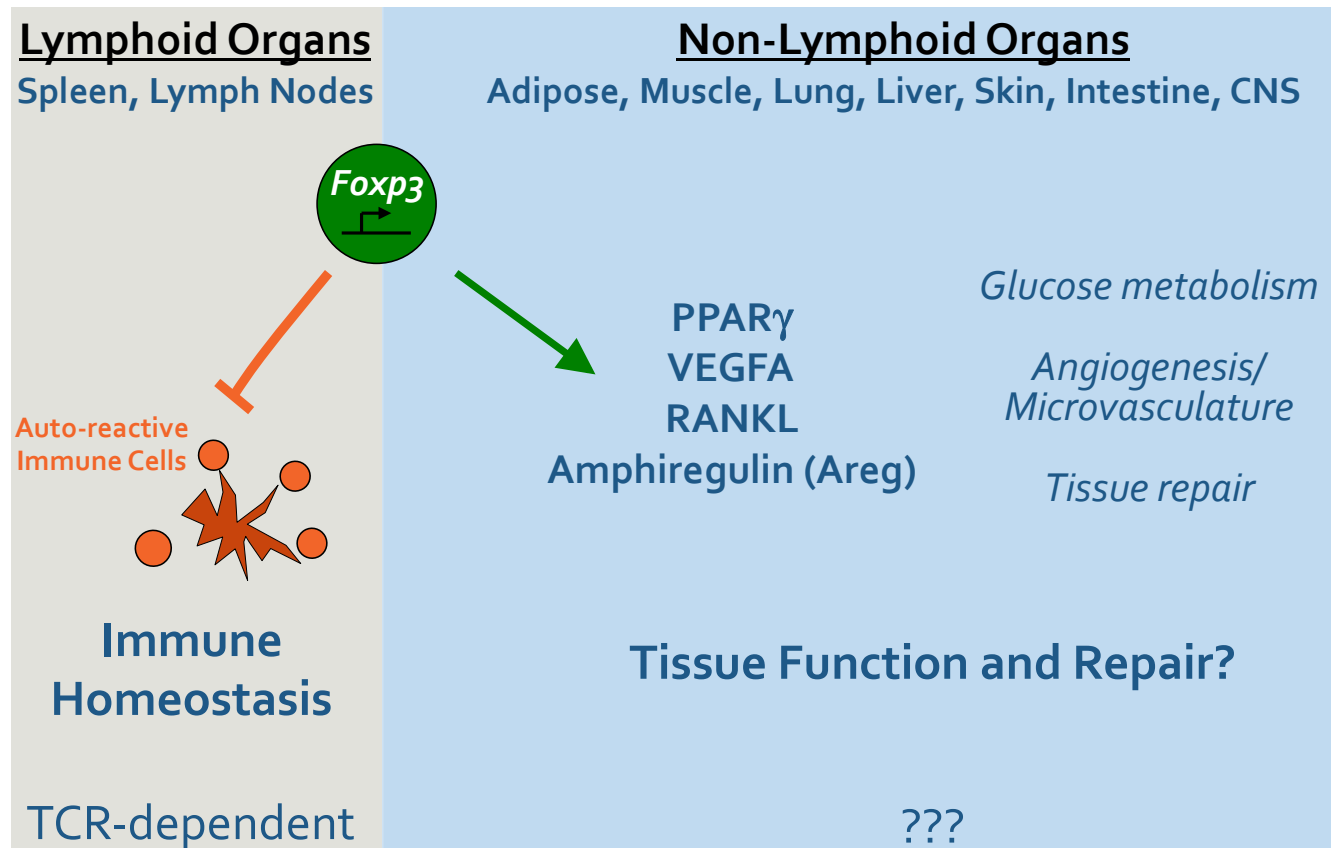


Treg cells — two distinct developmental pathways, induction at mucosal barriers

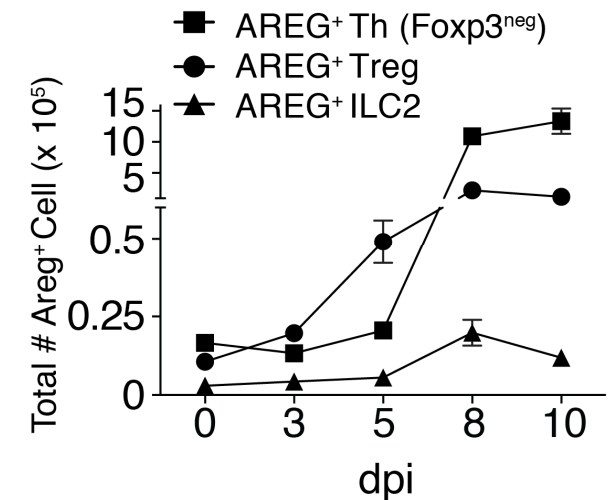
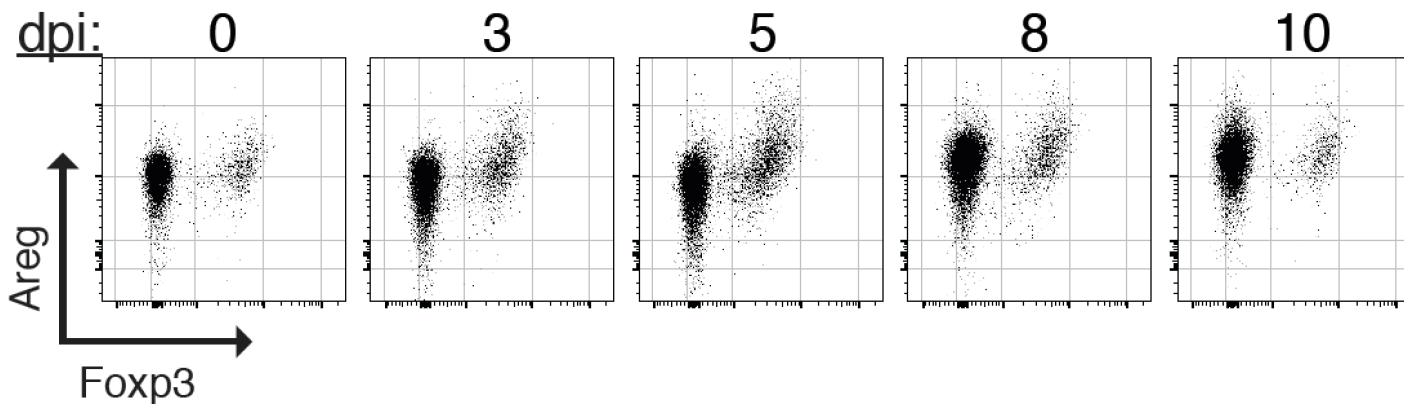


ADVANCING CANCER IMMUNOTHERAPY WORLDWIDE

Treg cells — function in different tissues

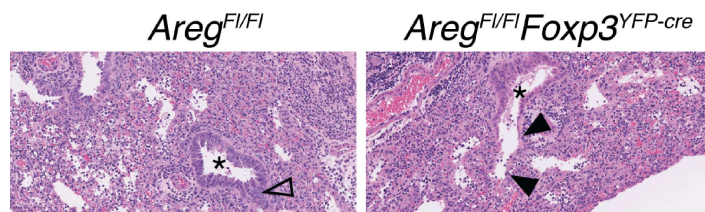


Treg cells — role in tissue protection and maintenance

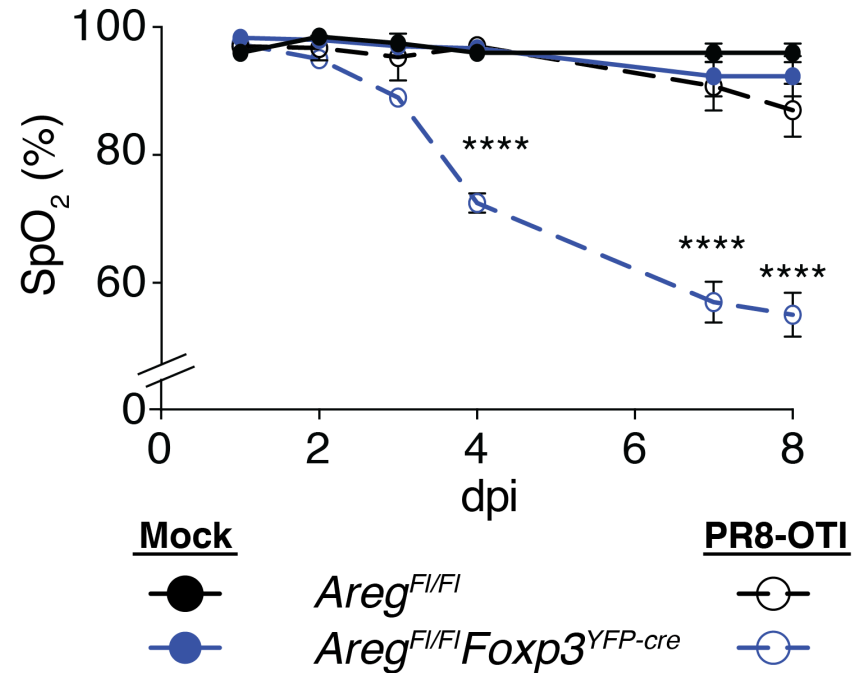
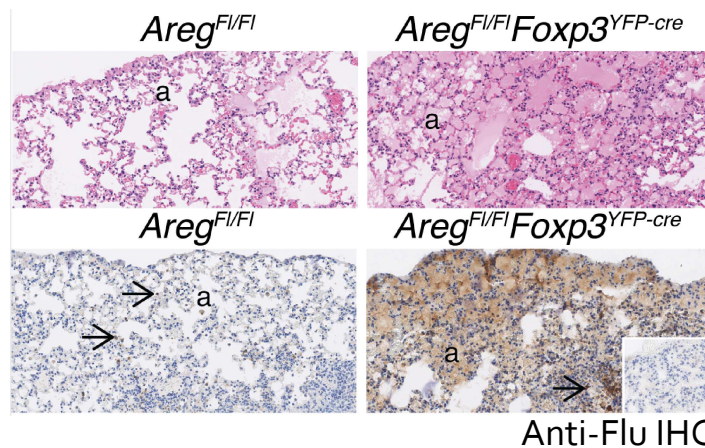


Treg cells — role in tissue protection and maintenance

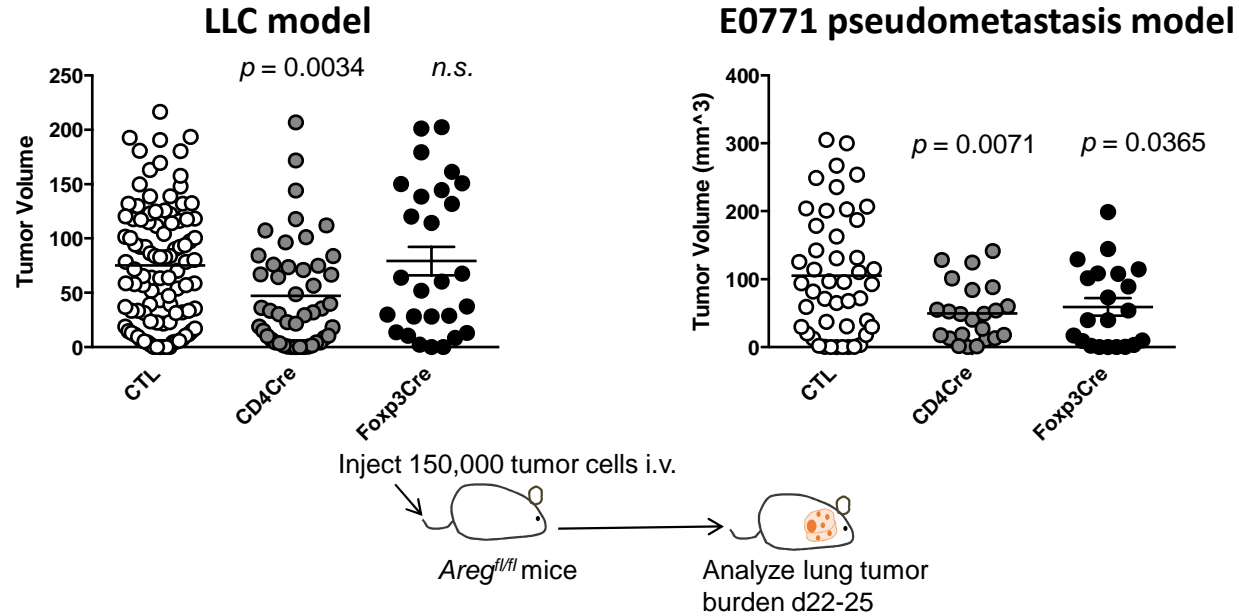
Increased bronchioalveolar cell loss



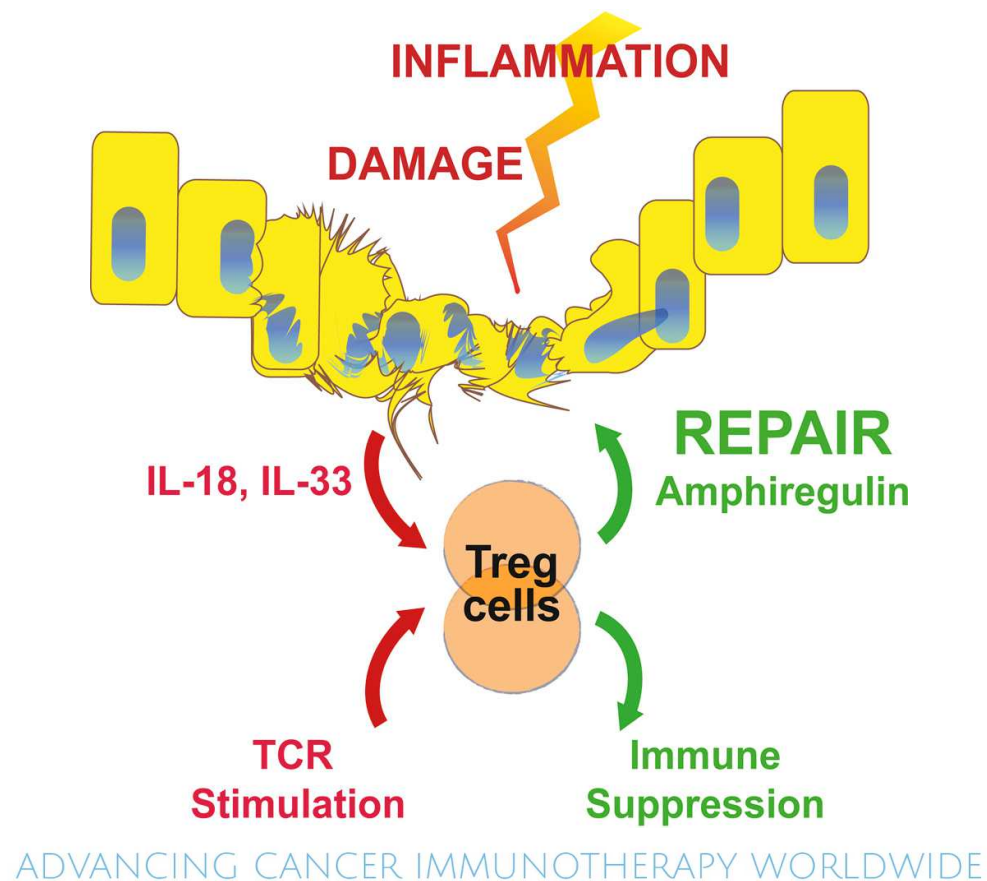
Increased alveolar edema



Treg cells — role in tumorigenesis



Lessons and Take Home Messages



Lessons and Take Home Messages

- Key points
- Potential impact on the field
- Lessons learned