Basic mechanisms of Immunotherapy

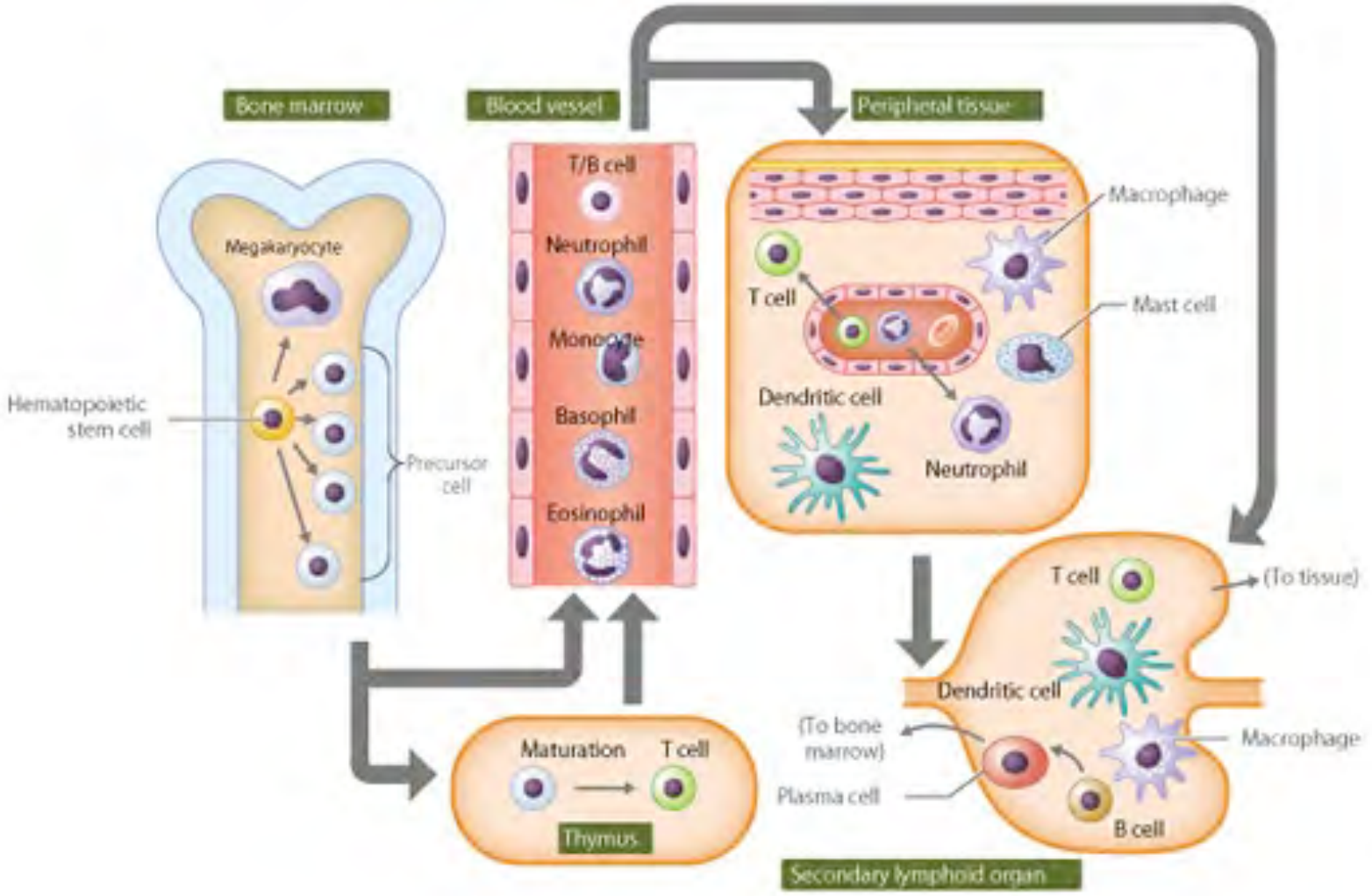
Making it in a simple Lenguage

Dr. Ada G. Blidner

Institute of Biology and Experimental Medicine, Buenos Aires, Argentina

adablidner@gmail.com

Who, Where, When?



Innate and Adaptive Immune Response

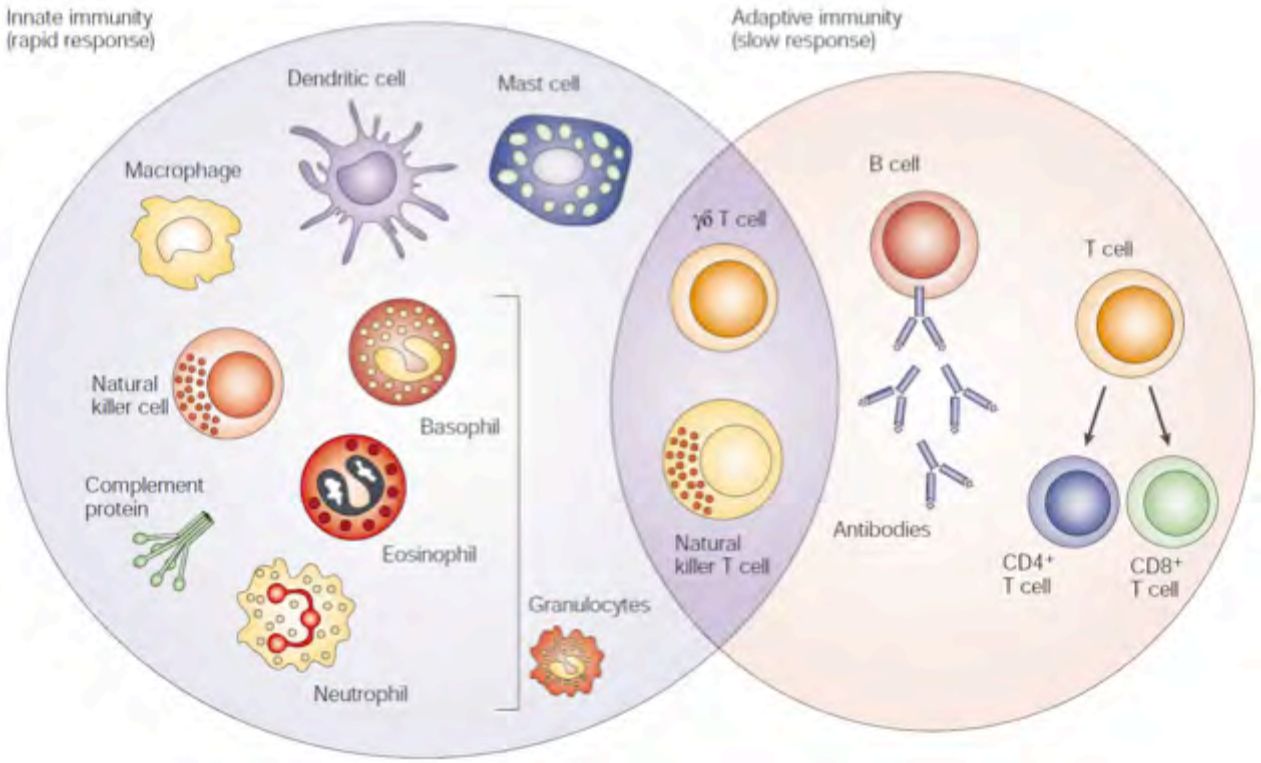
Fast

Recognizes Pathogen associated paterns

Capable of eliminating infections

Ready to act, in the tissues

Interacts with AIR



Dranoff, Nature Reviews, 2004

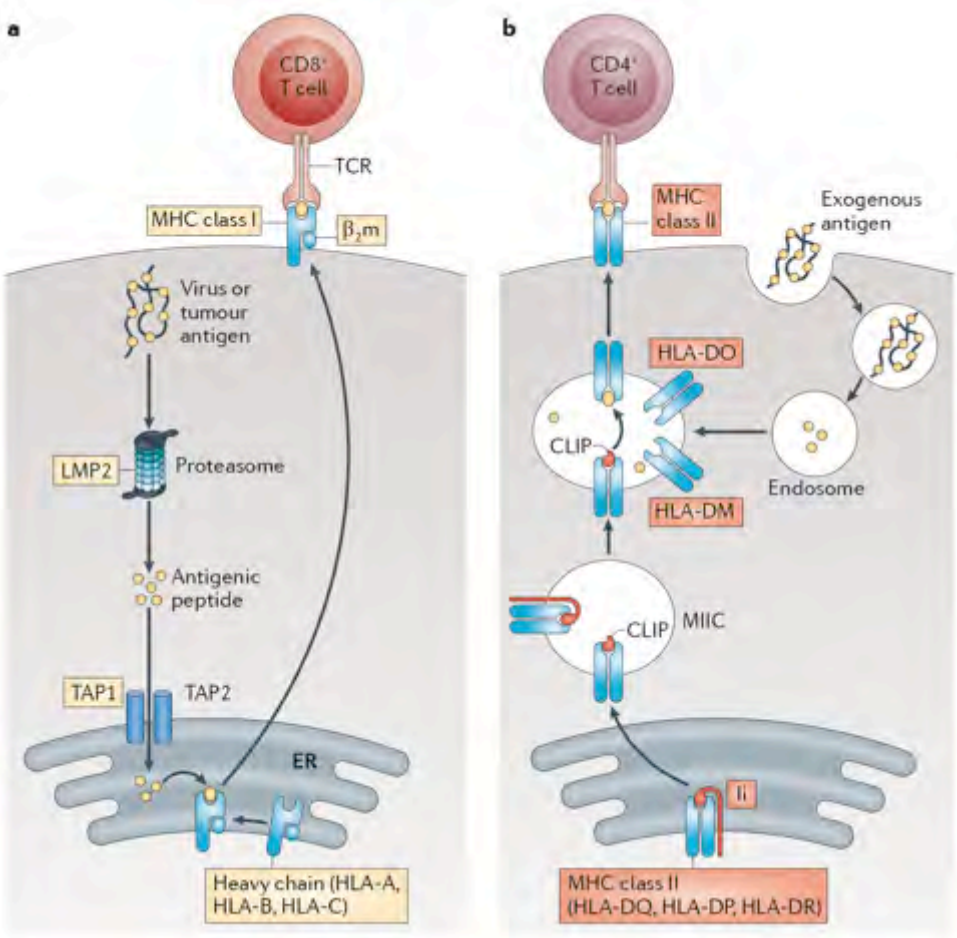
Slow

Recognizes specific antigens

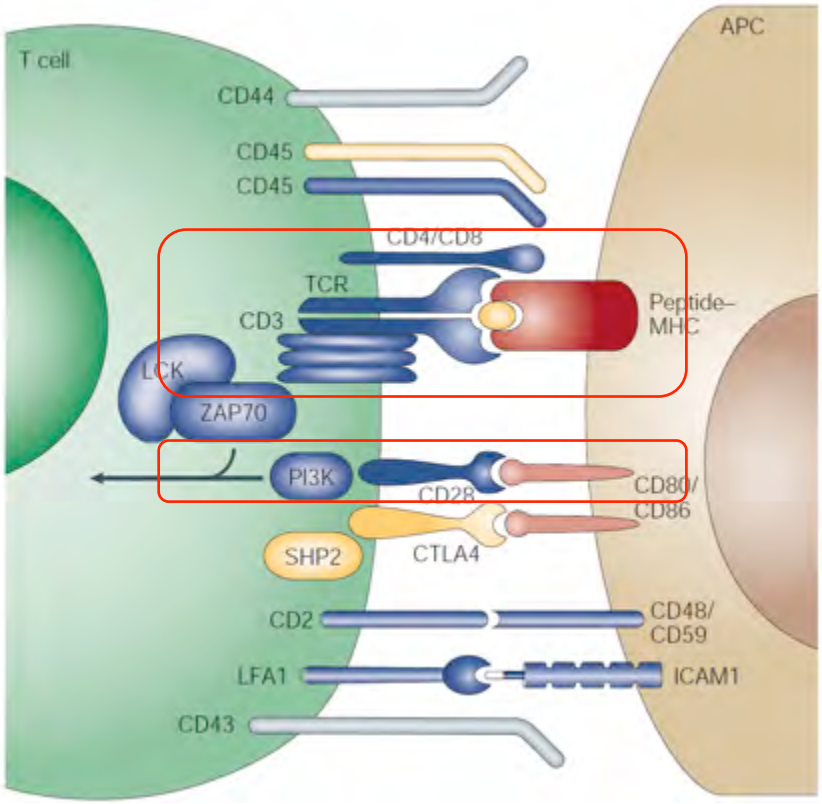
Very efficient in eliminating infections

In the Lymph nodes, needs IIR activation to migrate to tissues and act

Antigen presentation and Priming

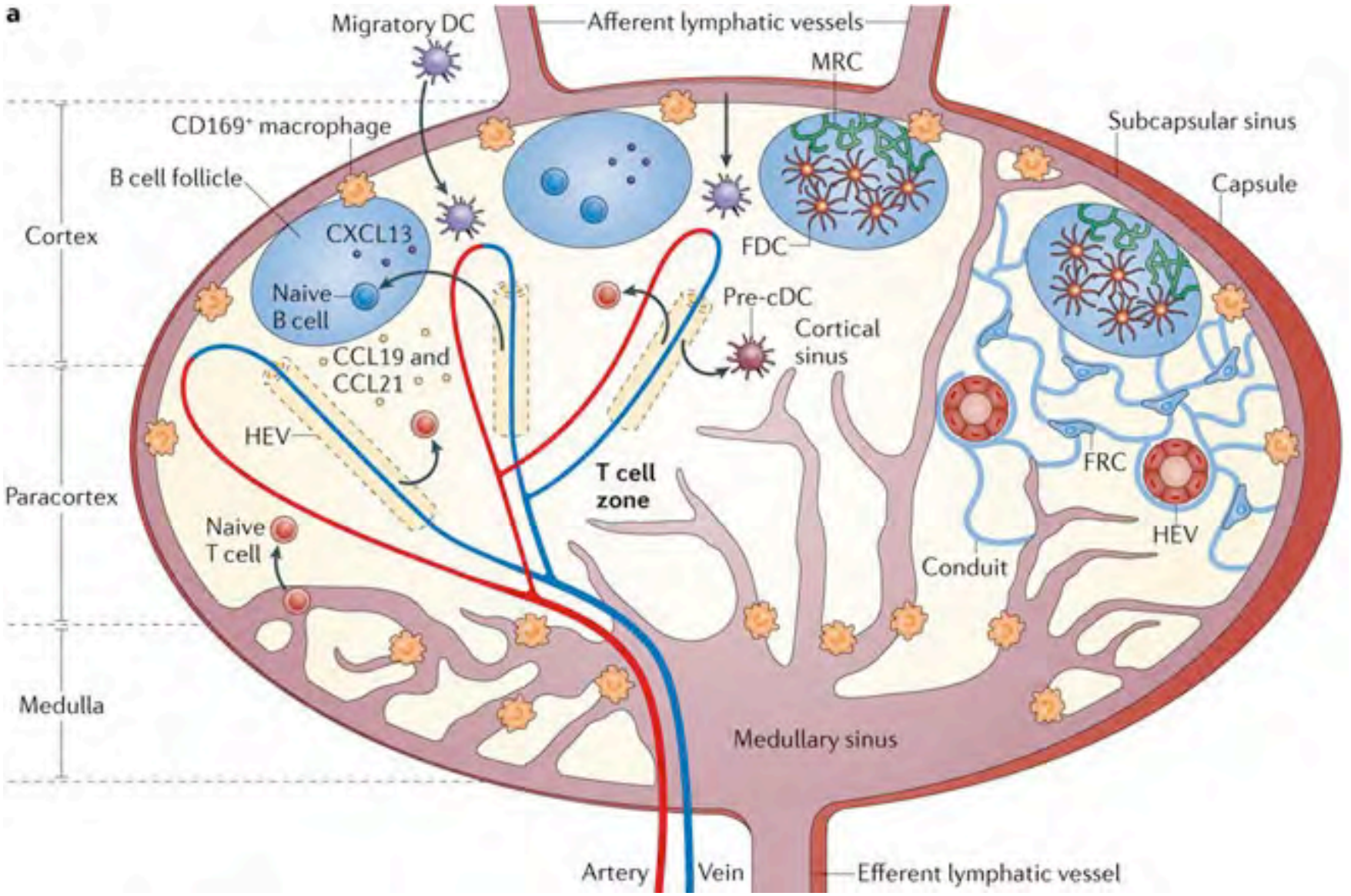


Koichi, Nature Reviews, 2012

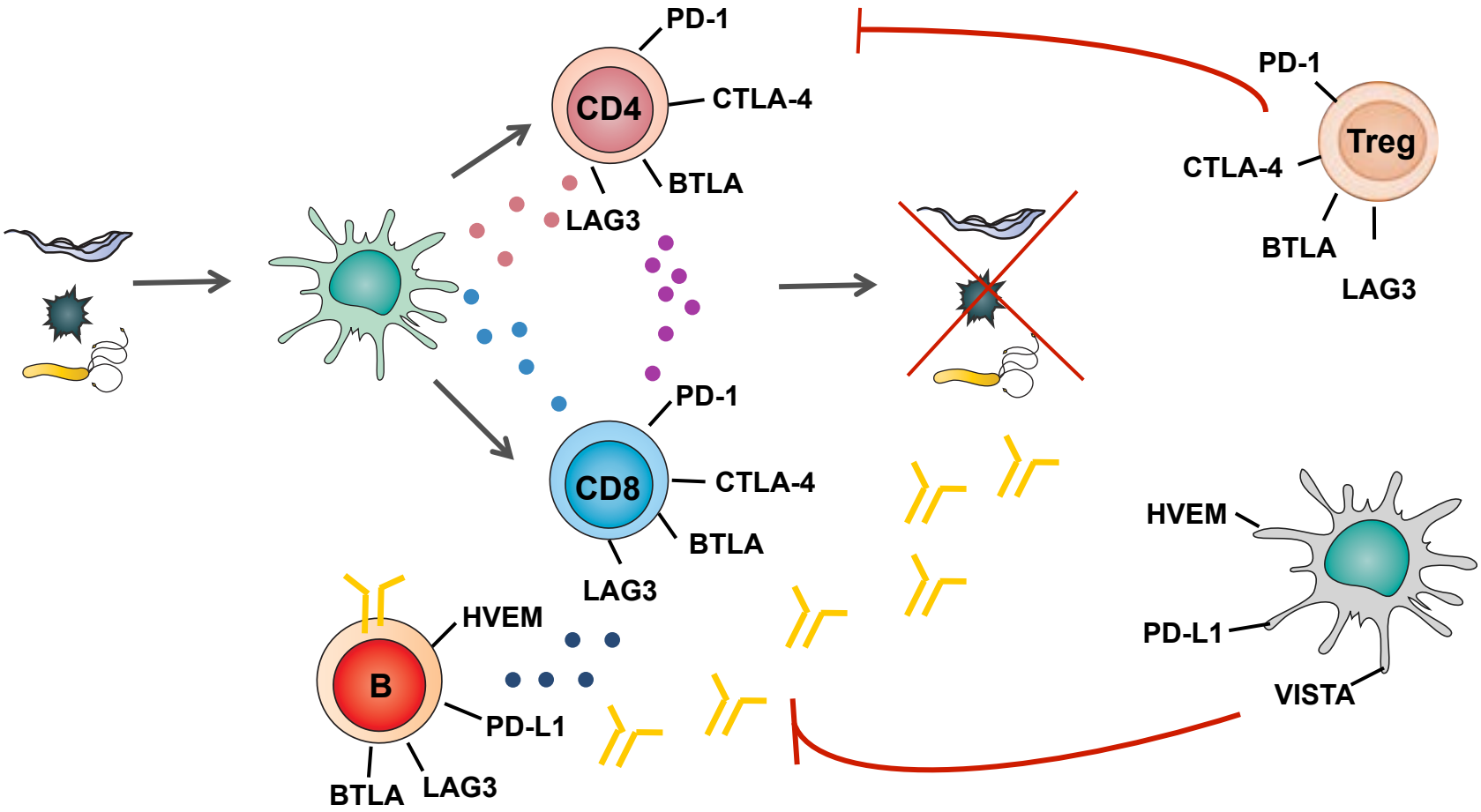


Huppa, Nature Reviews, 2003

Integrating the Immune Response

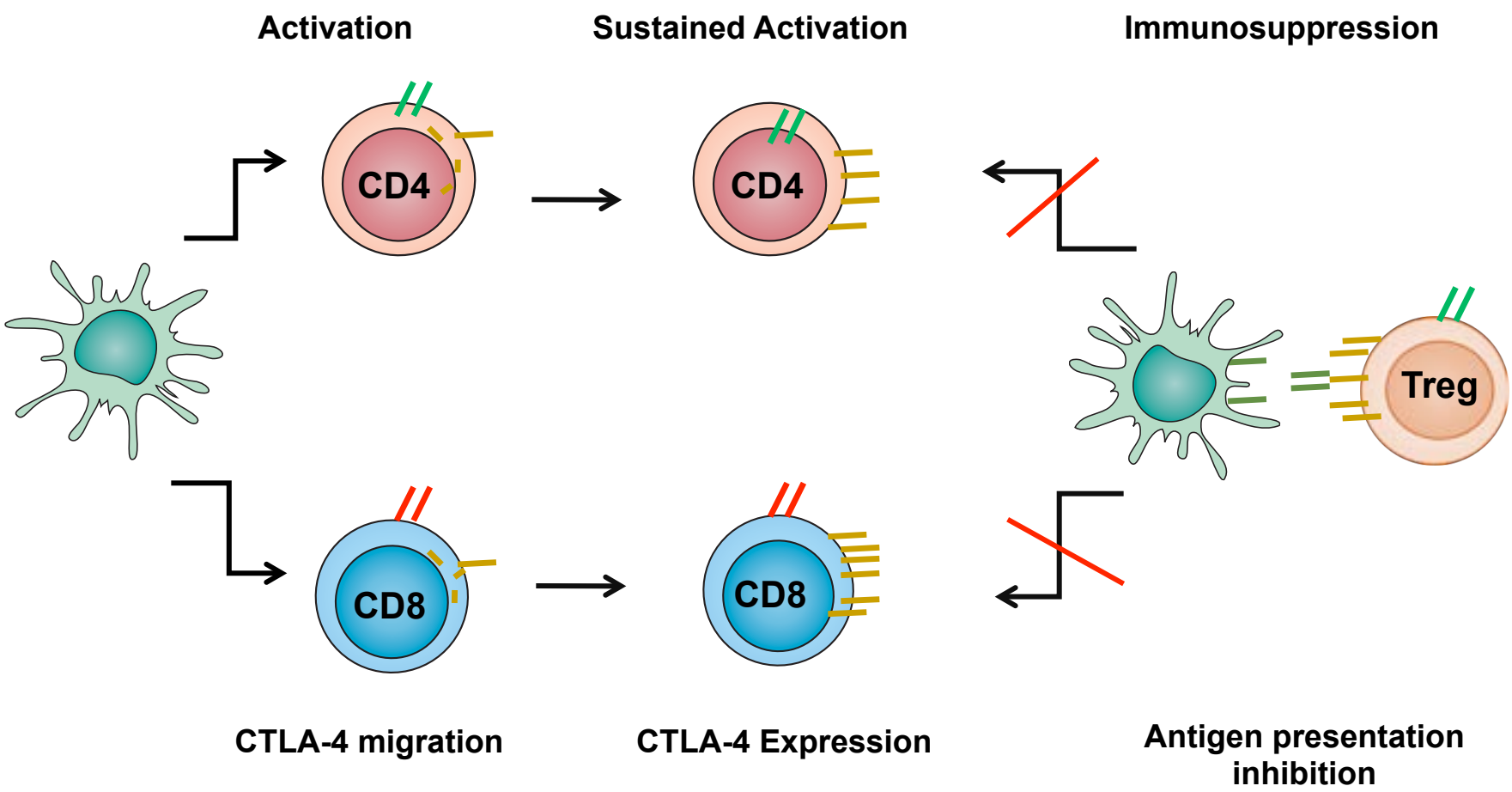


What are checkpoints good for?

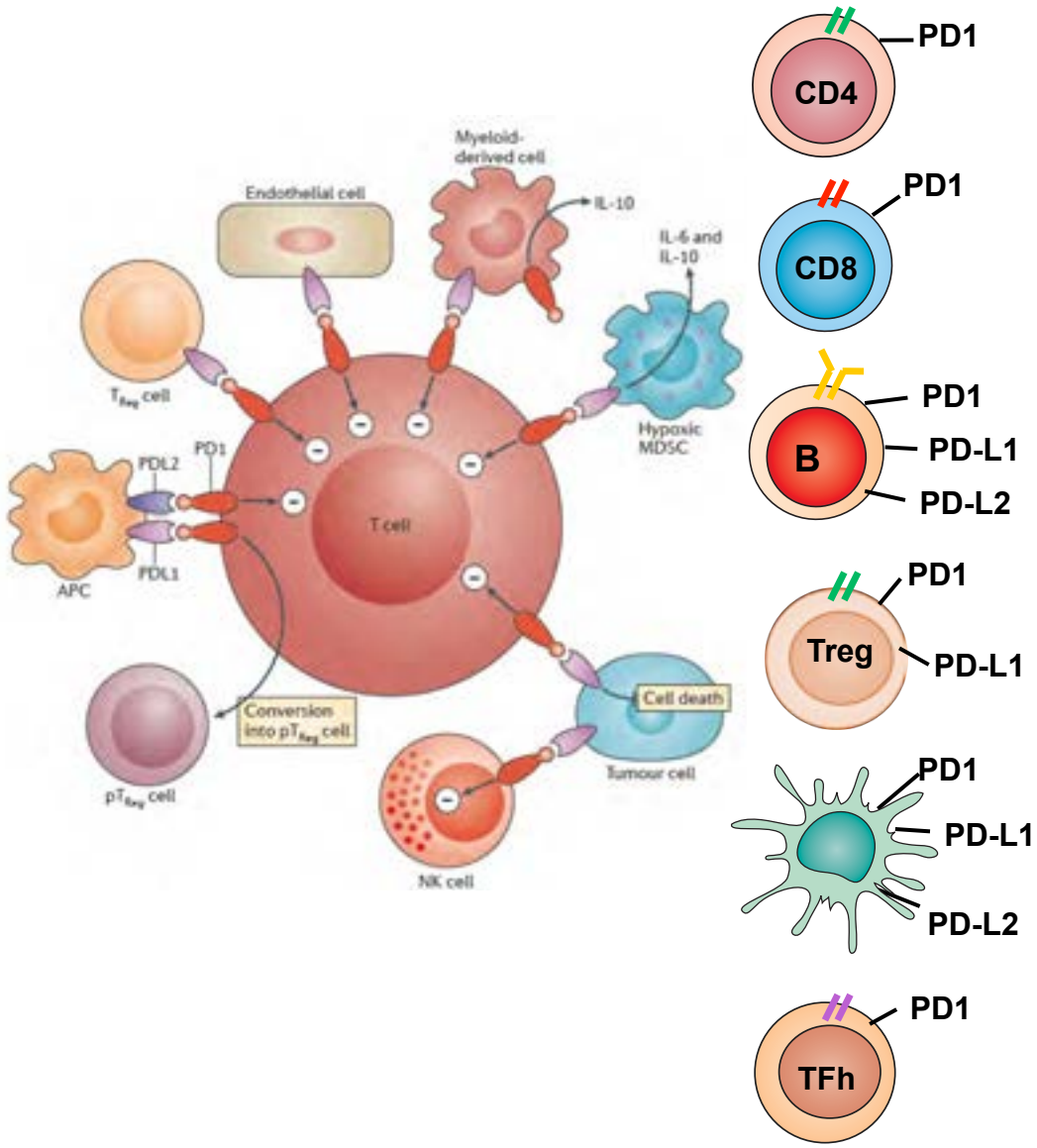


Immune homeostasis

CTLA-4


Activation
Sustained Activation
Immunosuppression
CD4
CD4
Treg
CD8
CD8
CTLA-4 migration
CTLA-4 Expression
Antigen presentation inhibition
Ligand Competition
Deactivation of proliferation signals

PD-1



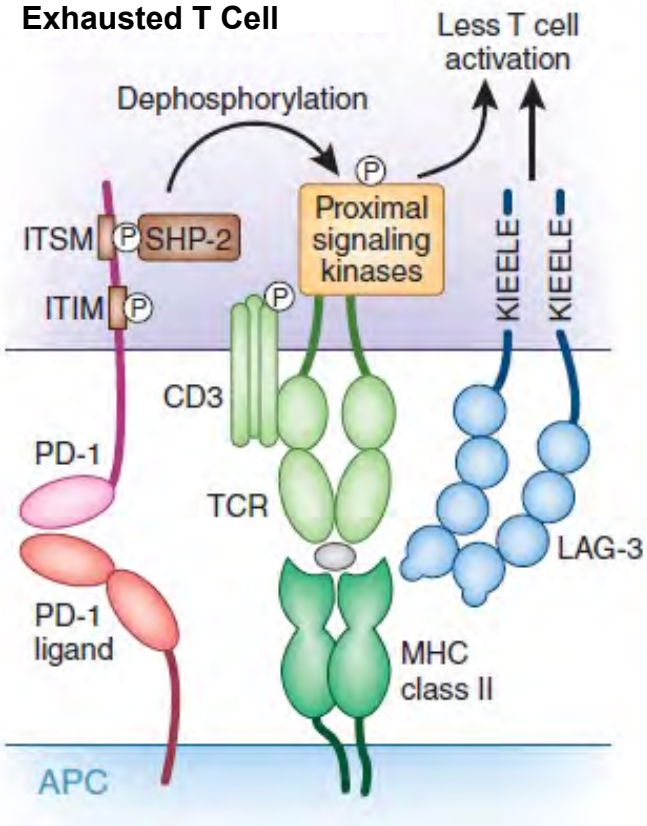
PD-1 is expressed following **T** cel **activation**

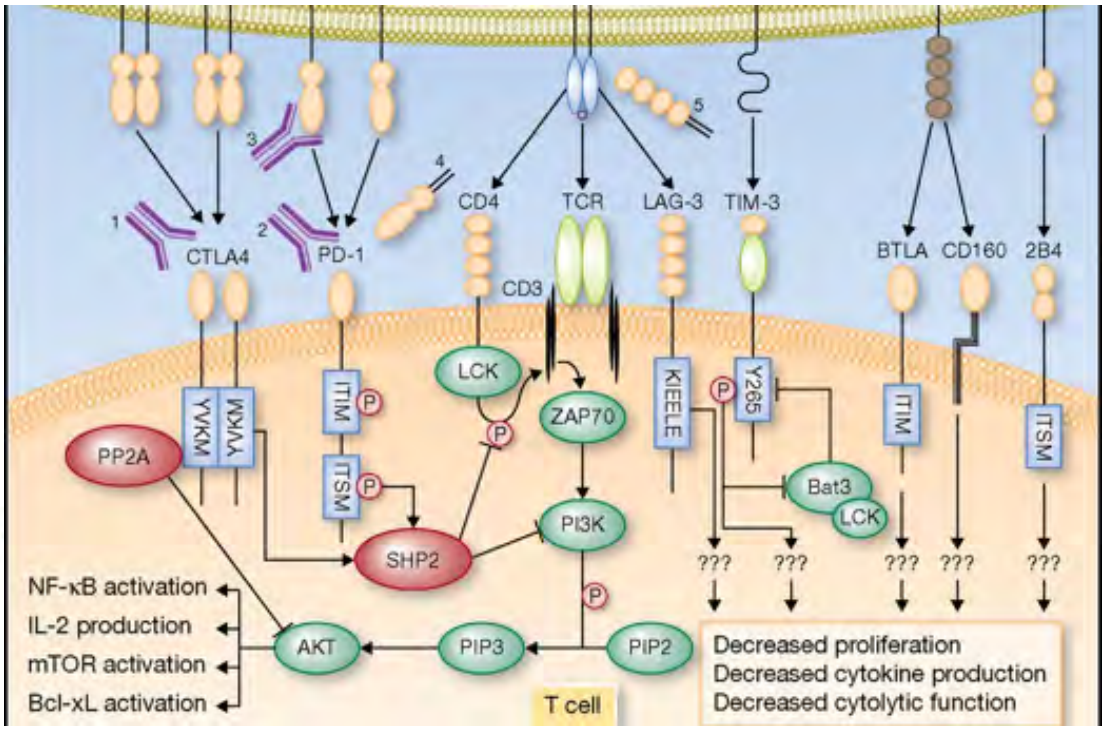
PD-L1 is expressed in **lymphoid and non-lymphoid tissues. PD-L2** mainly in **APCs**

PD-L1 is expressed on **Endothelial cells**, which inhibit T cell activity in **SLO**

PD-1 is expressed in **Exhausted T cells**

PD-1



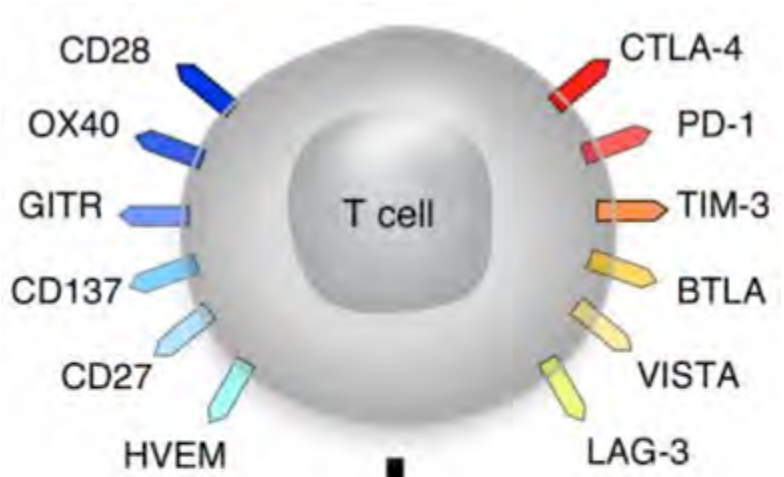


PD-1/PD-L1 interaction **inhibits** TCR mediated **T cell activation** and **Proliferation**

T cell ON/OFF

Co-stimulatory molecules

Co-inhibitory molecules



Activation

Inflammation

Autoimmunity

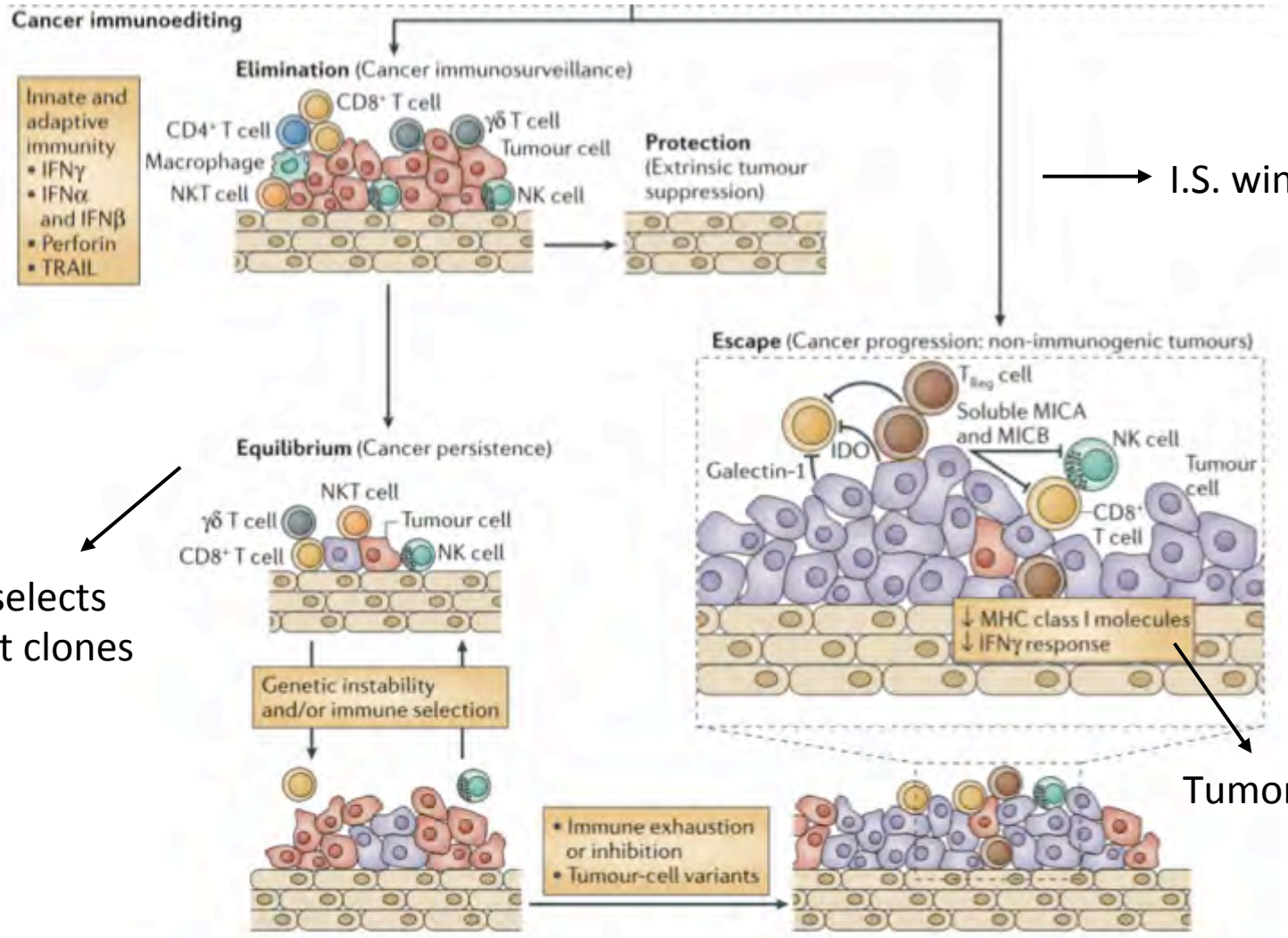
T cell stimulation

Anergy

Homeostasis

Cancer

How do Tumors take advantage of IC?



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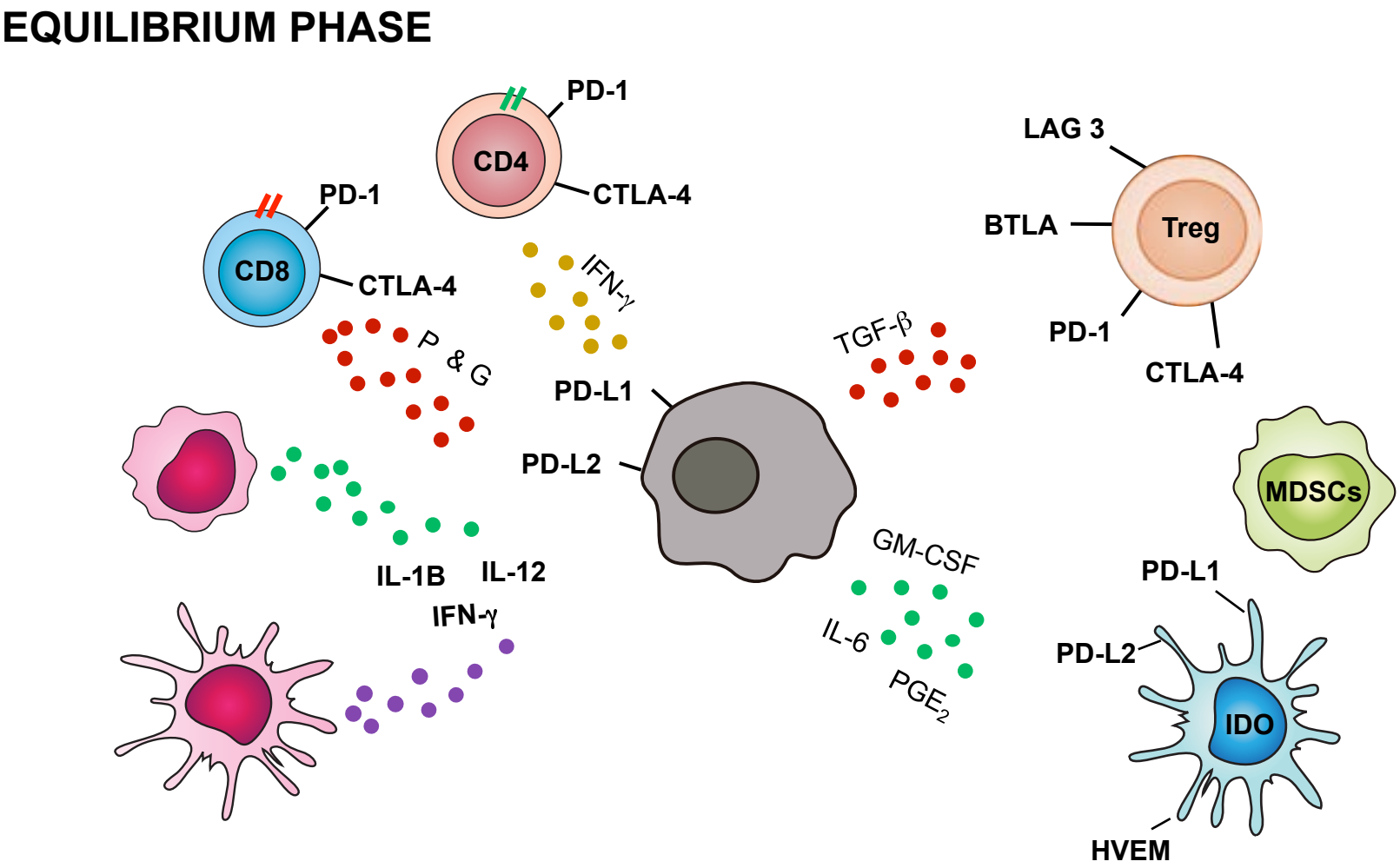
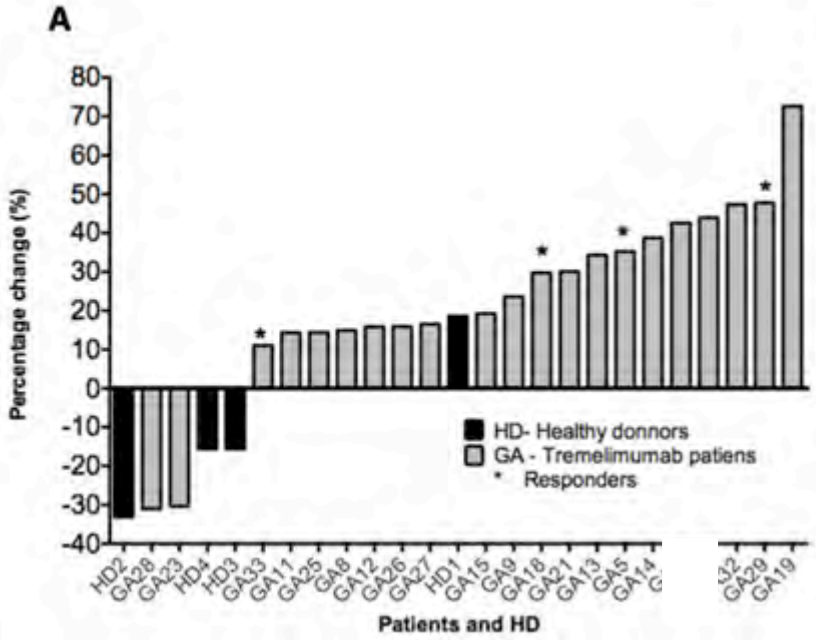
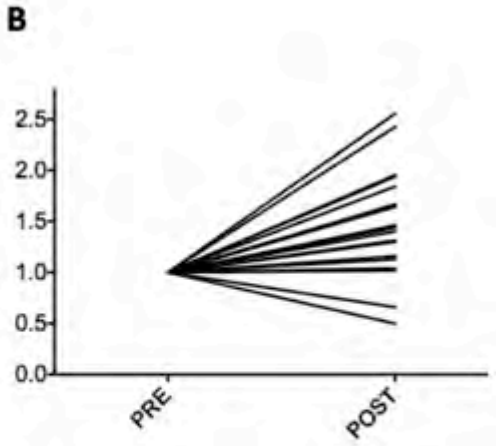
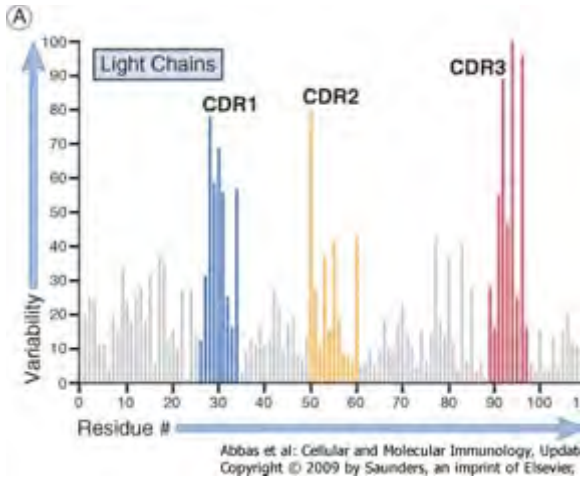
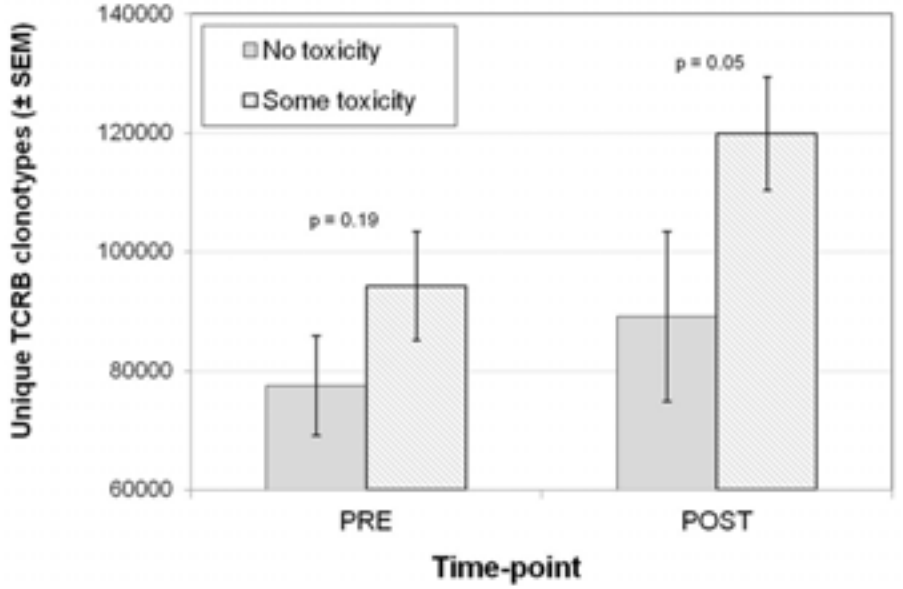


CTLA-4 blockade broadens T cell repertoire

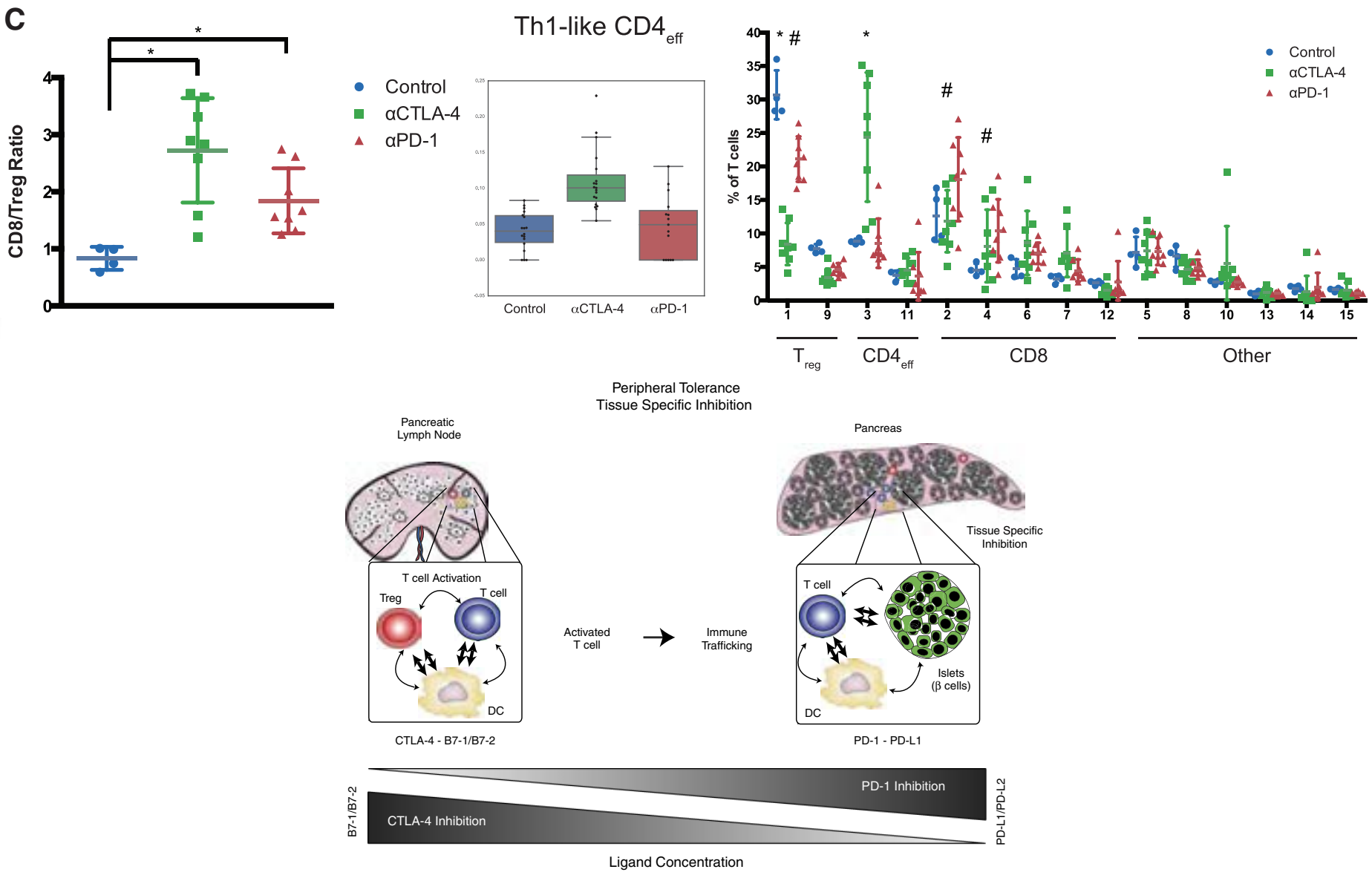




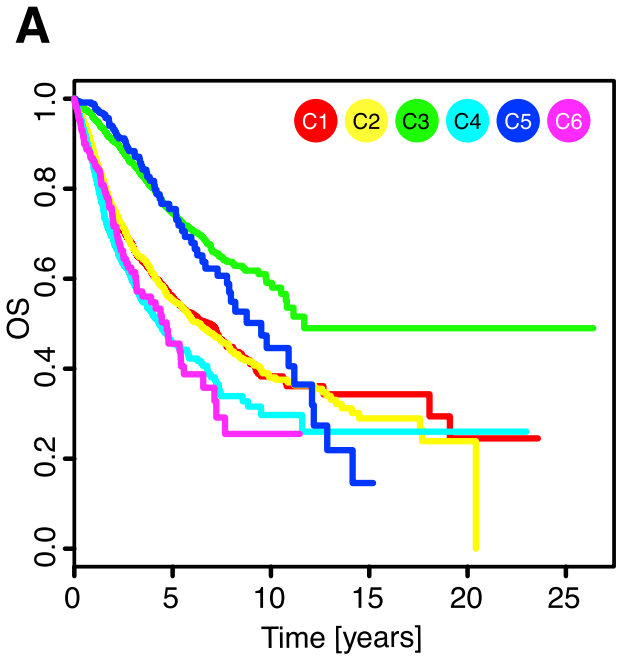


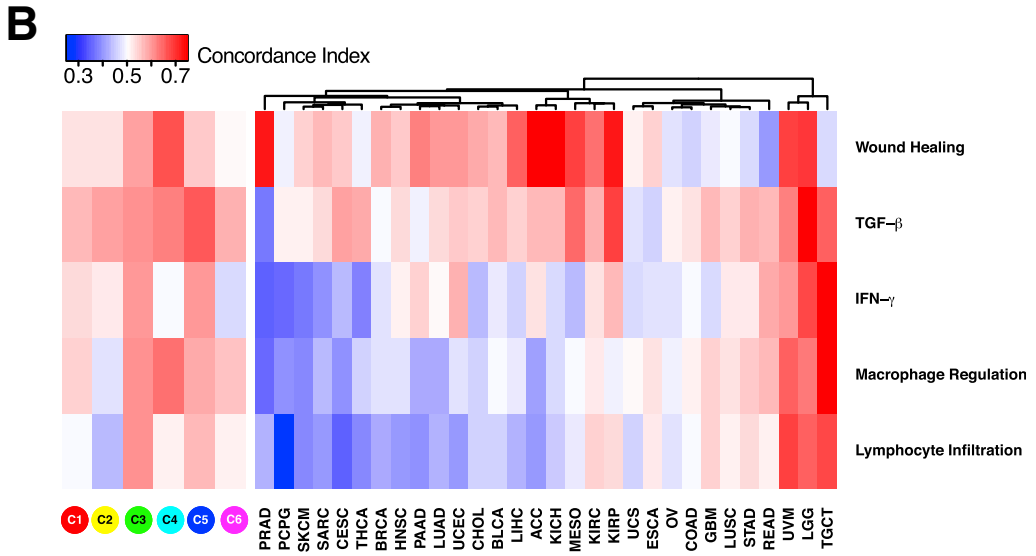


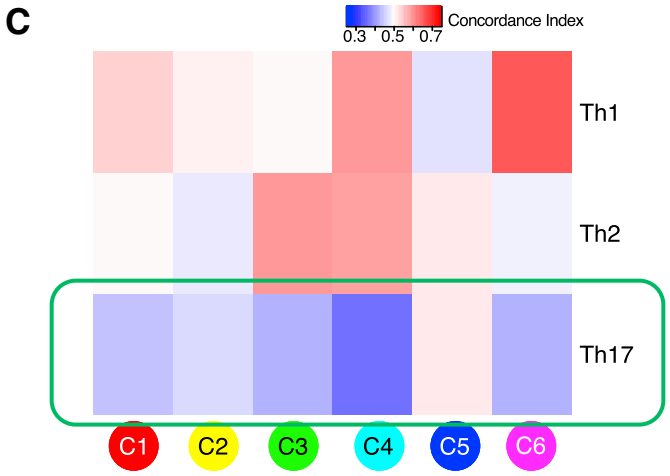
Differences between CTLA-4 and PD-1 blockade



Th1/Th17 responses correlate with good prognosis

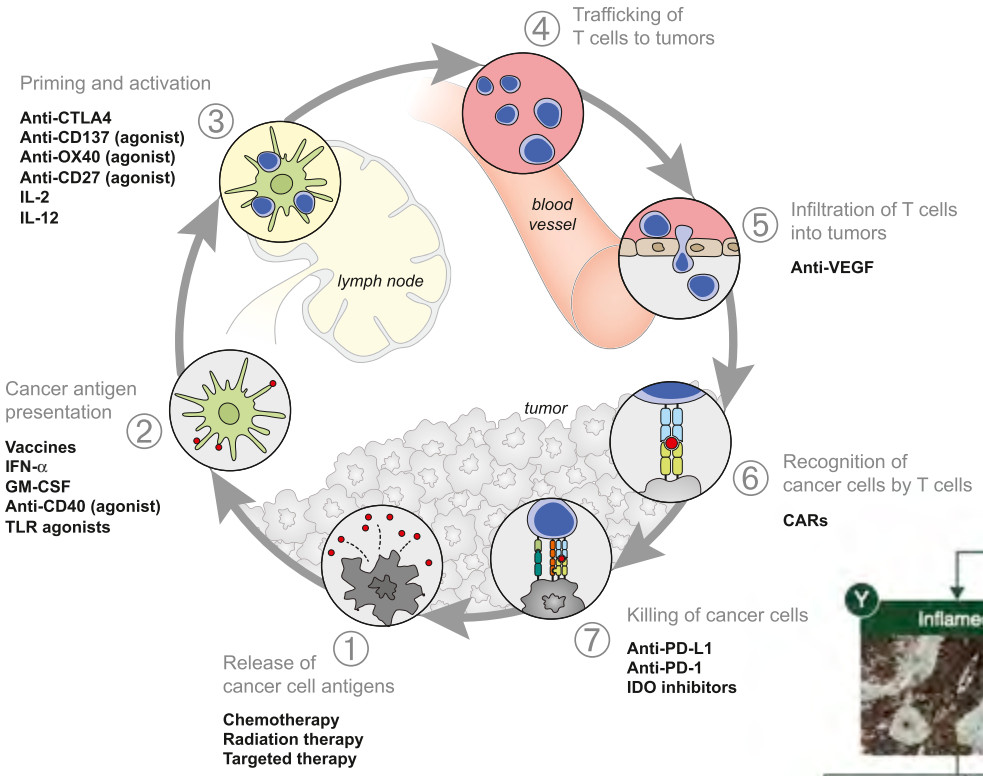




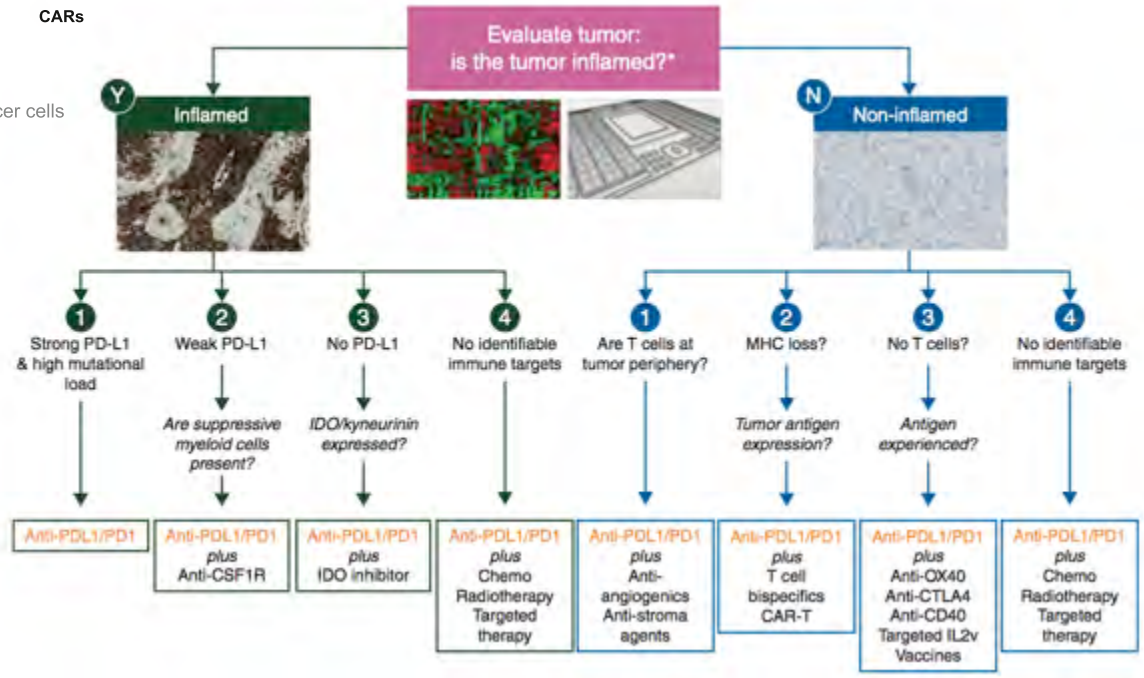


The increase in Th17 correlates with a better progonosis

Personalized Immunotherapy



Can we personalize iARE detection?



Thanks!

Immunopathology Lab, Institute of Biology and Experimental Medicine-CONICET

Dr. **Gabriel Rabinovich**, Senior Investigator, Full Professor FCEyN-UBA

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