



IEGULDĪJUMS TAVĀ NĀKOTNĒ



"Promotion of International Cooperation
Activities of Riga Stradiņš University in Science and Technologies", agreement No.
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ROLE OF T-CELL SUBSETS IN REGULATION OF IMMUNE RESPONSE

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Cancer cure 'may be available in two years'

By Nic Fleming Science Correspondent

Last Updated: 3:56am BST 21/09/2007

Cancer sufferers could be cured with injections of immune cells from other people within two years, scientists say.

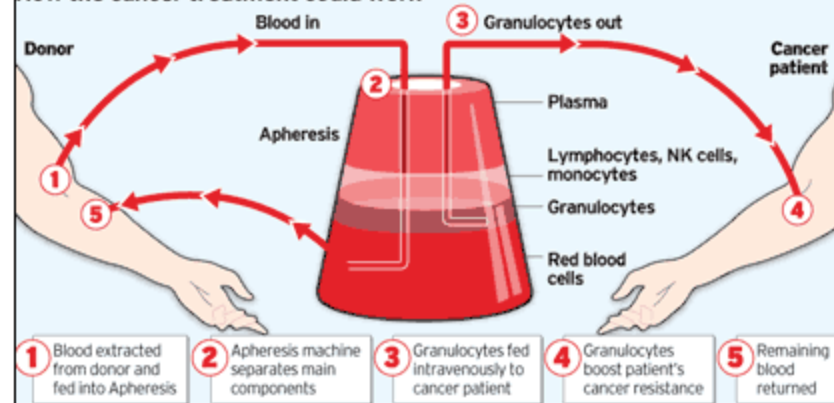
♦ [Red tape hinders cancer research, says report](#)

US researchers have been given the go-ahead to give patients transfusions of "super strength" cancer-killing cells from donors.

Dr Zheng Cui, of the Wake Forest University School of Medicine, has shown in laboratory experiments that immune cells from some people can be almost 50 times more effective in fighting cancer than in others.

Dr Cui, whose work is highlighted in this week's New Scientist magazine, has previously shown cells from mice found to be immune to cancer can be used to cure ordinary mice with tumours.

How the cancer treatment could work



MOST VIEWED



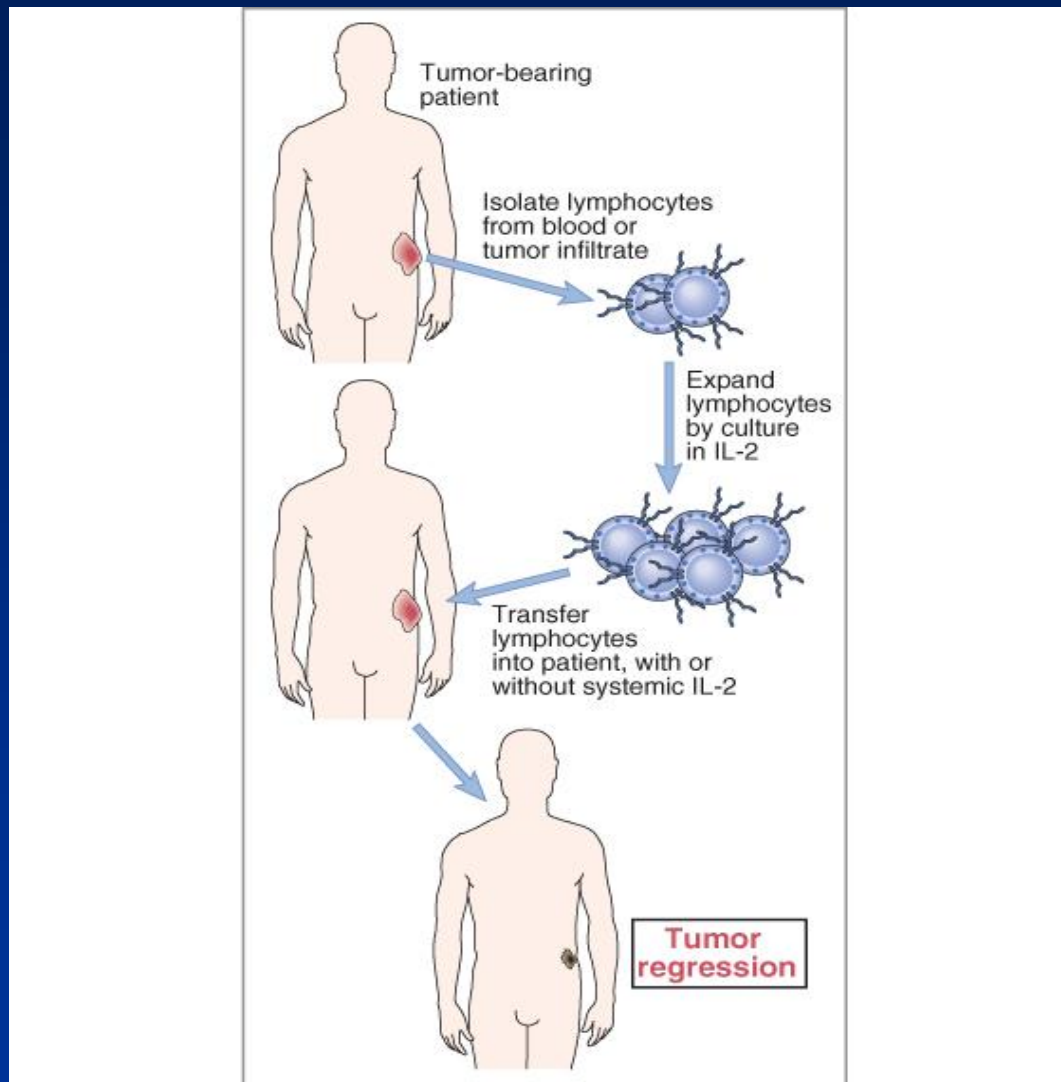
REGION BY REGION

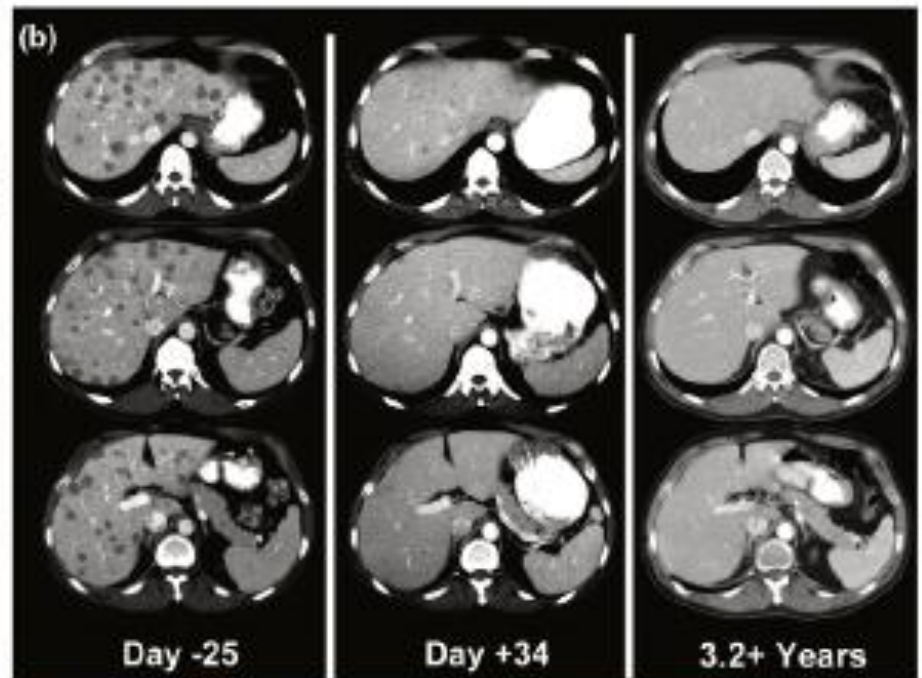
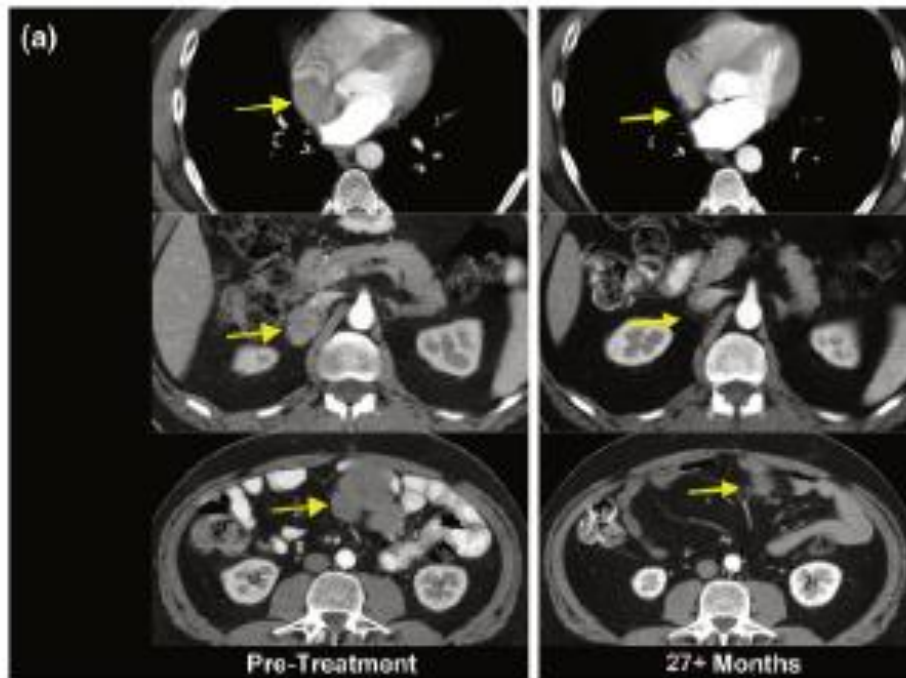
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- ♦ [Pre-Budget Report 2007](#)
- ♦ [Captain Kenneth Lockwood](#)
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telegraph travel offers

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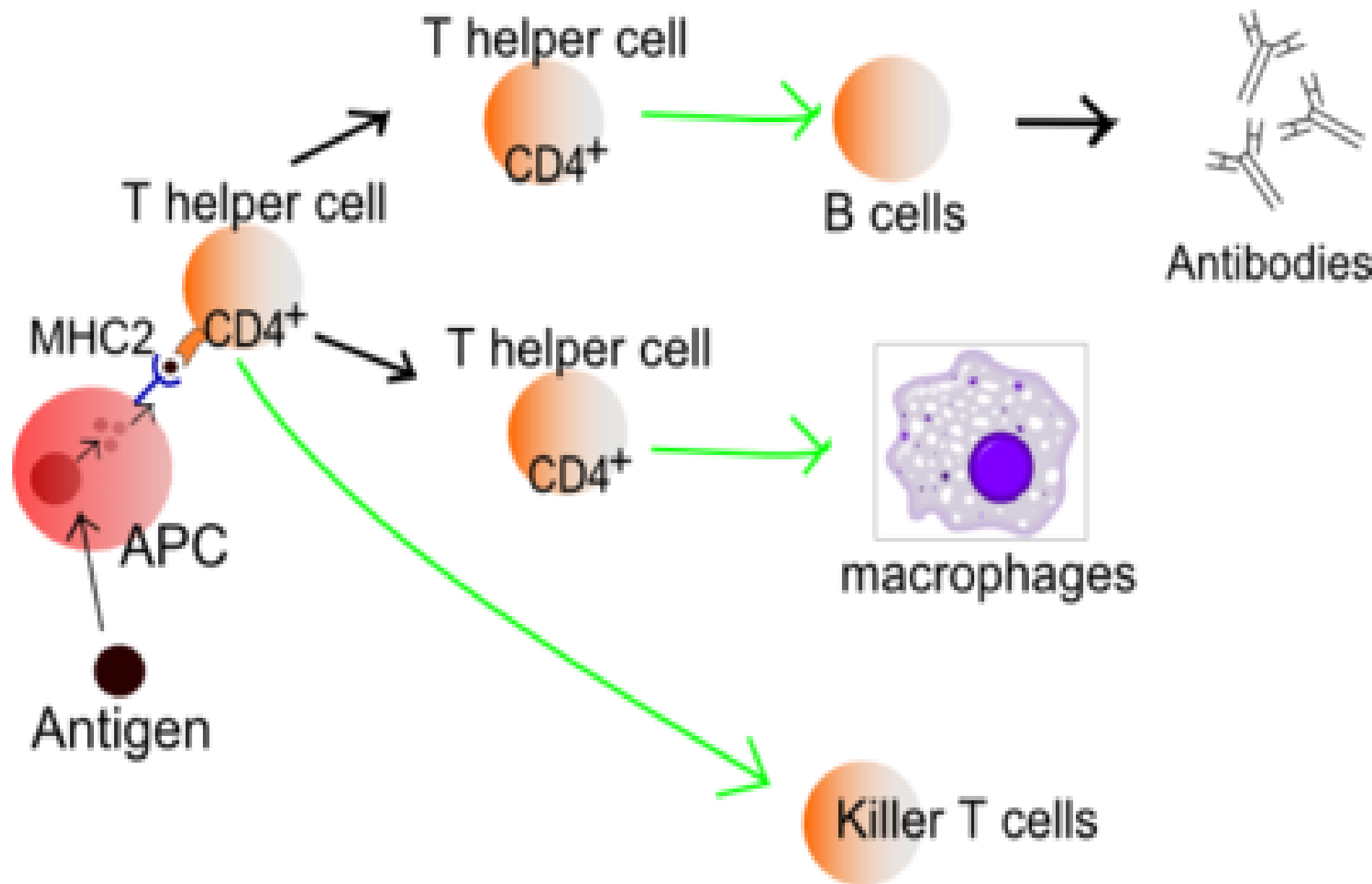
Adoptive lymphocyte transfer



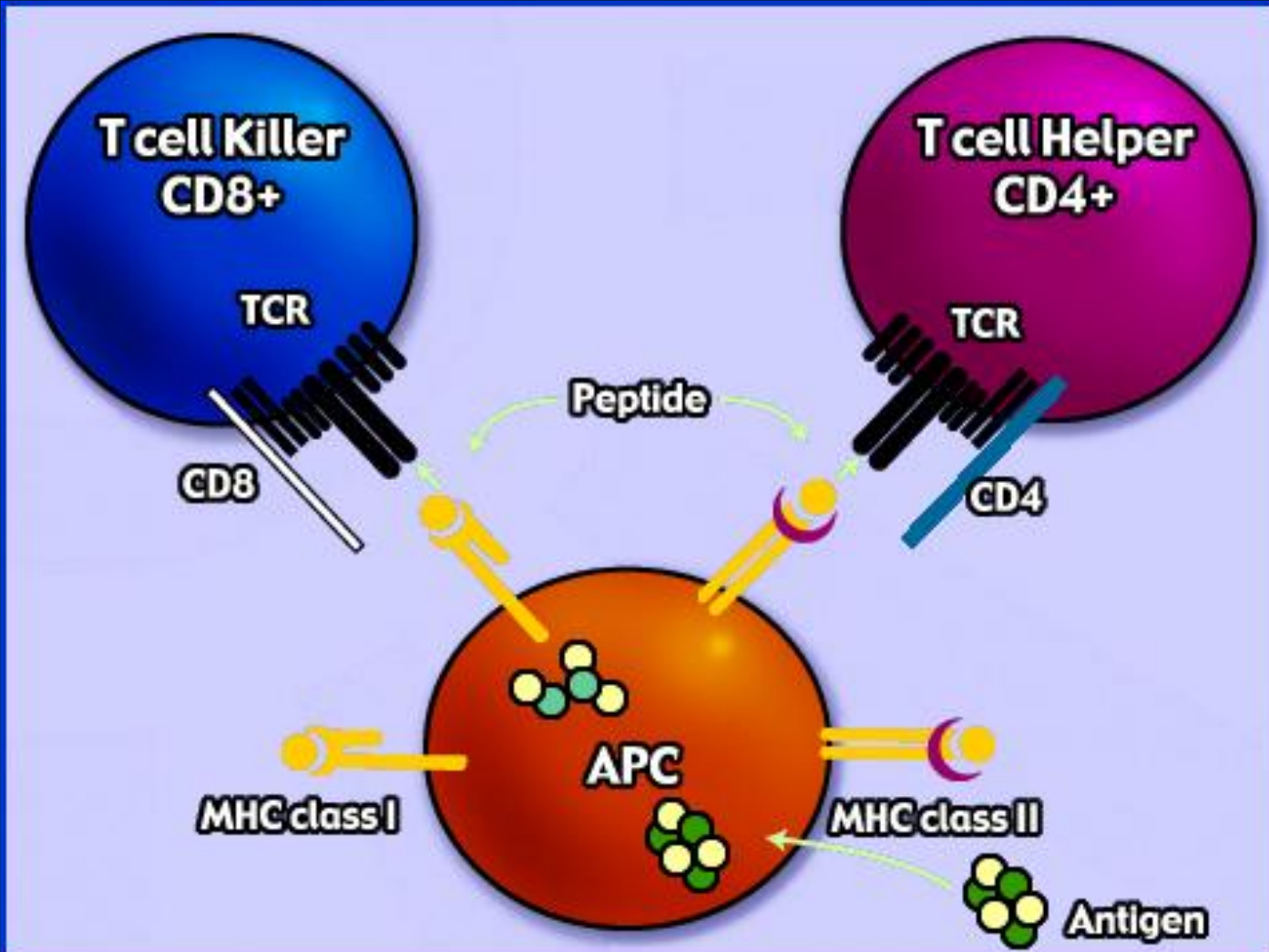


~ 5×10^{11} lymphocytes in human body

- 2% in peripheral blood
- 98% in in all organs
- 5×10^{11} lymphocytes travel through the blood each day
- Most lymphoid and non-lymphoid organs are included in migration / circulation routes



Central dogma of cancer immunology



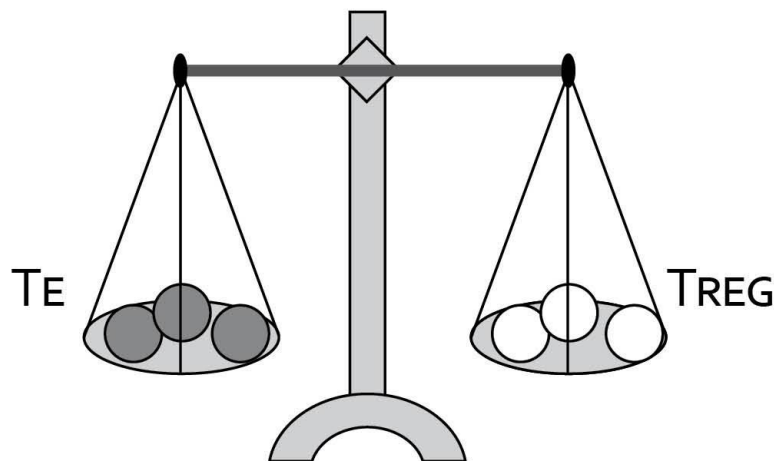
BioLegend
The path to legendary discovery

Interactive Poster: haloweb.com/immunologicnetworks

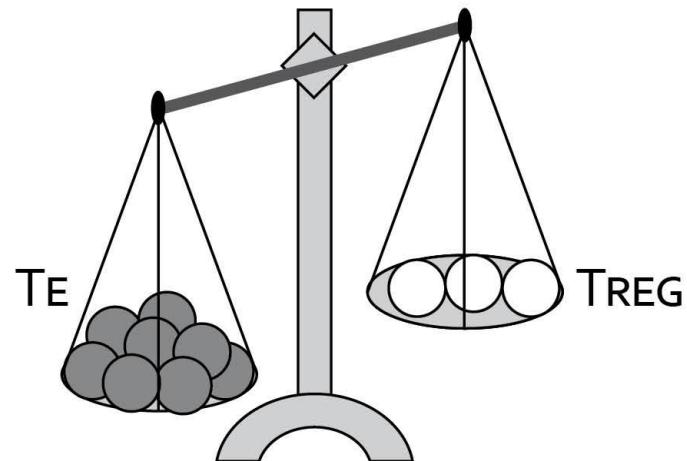
We would like to thank Dr. Wiley K. Karchner of Harvard Medical School for his contributions to this poster.

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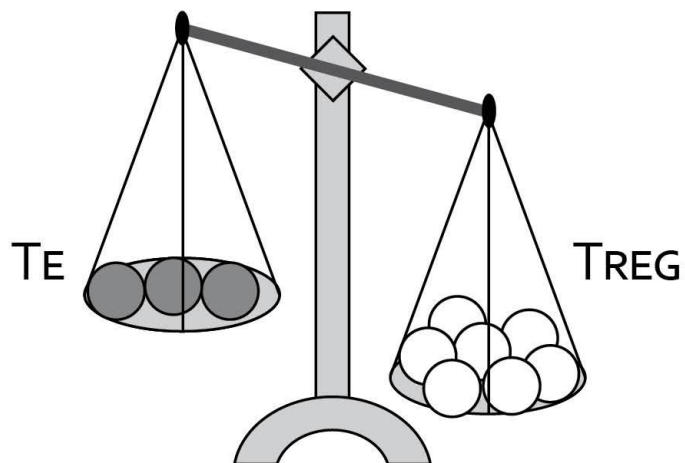
Created by ProteinLounge.com in Sep 2013



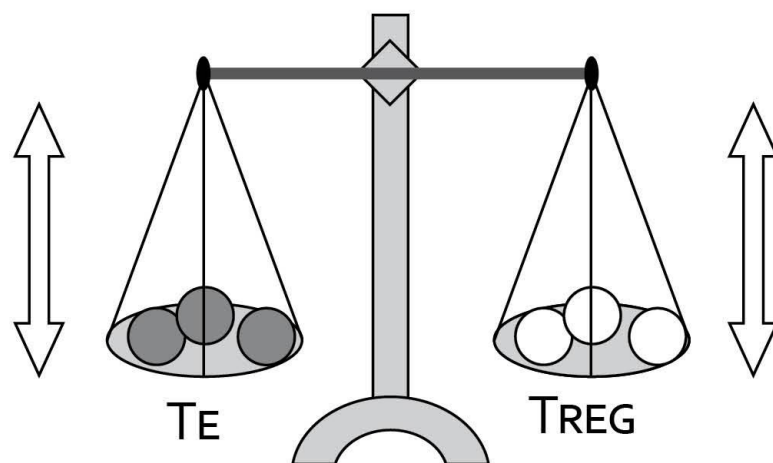
Normal Balance



Autoimmune Disease



Cancer



Immunomodulation

Extracellular bacteria
Fungi
Autoimmunity

Intracellular pathogens
Autoimmunity

IL-21
IL-17a
IL-17f
IL-22
(IL-10)



IFN γ
IL-2
LT α
(IL-10)



TGF β
IL-35
IL-10



GATA-3/Stat5

IL-4
IL-5
IL-13
IL-25
Amphiregulin
IL-10



Immune tolerance
Lymphocyte homeostasis
Regulation of immune responses

Extracellular parasites
Allergy and asthma

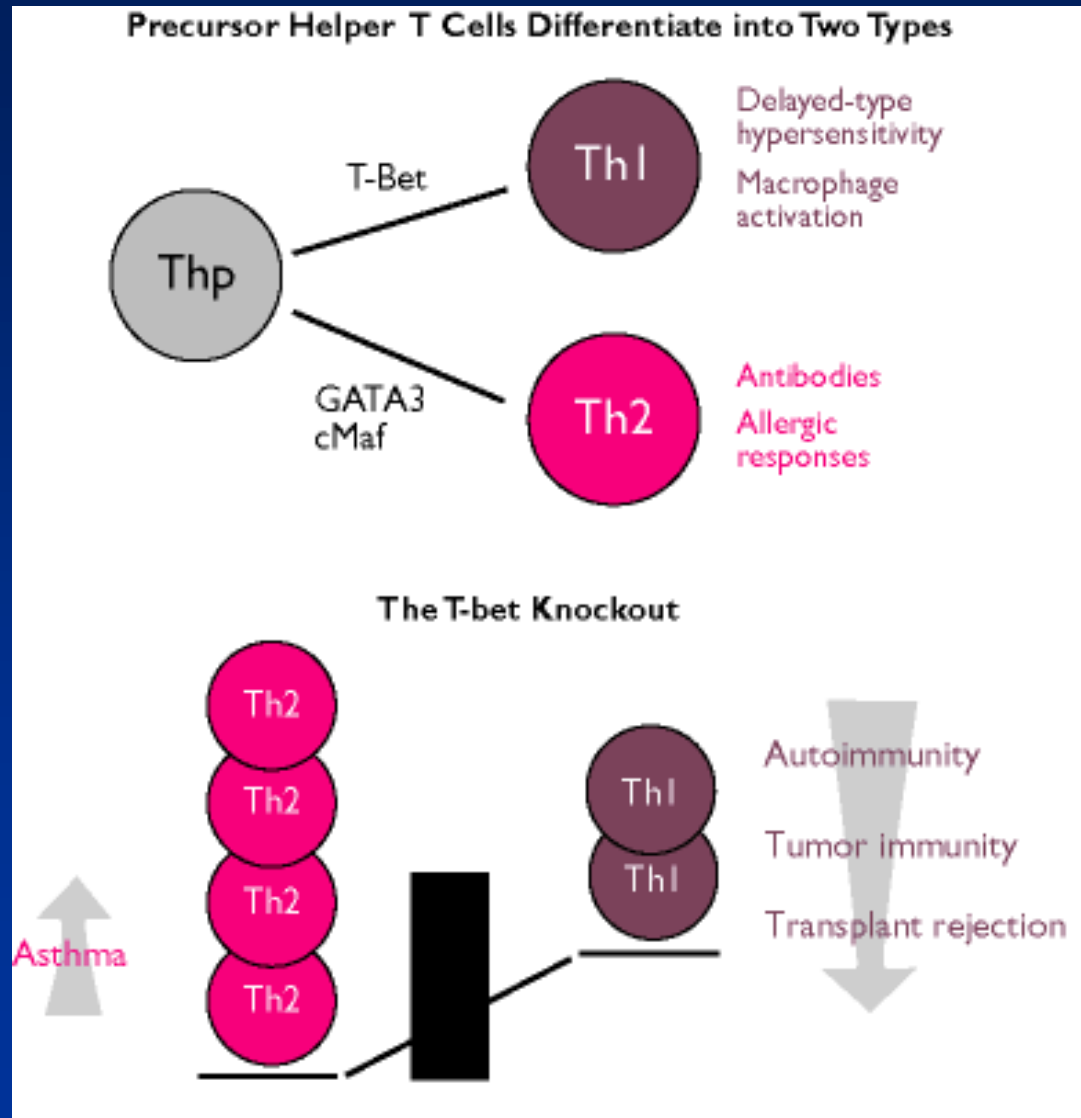
CD4+



Th1

Th2

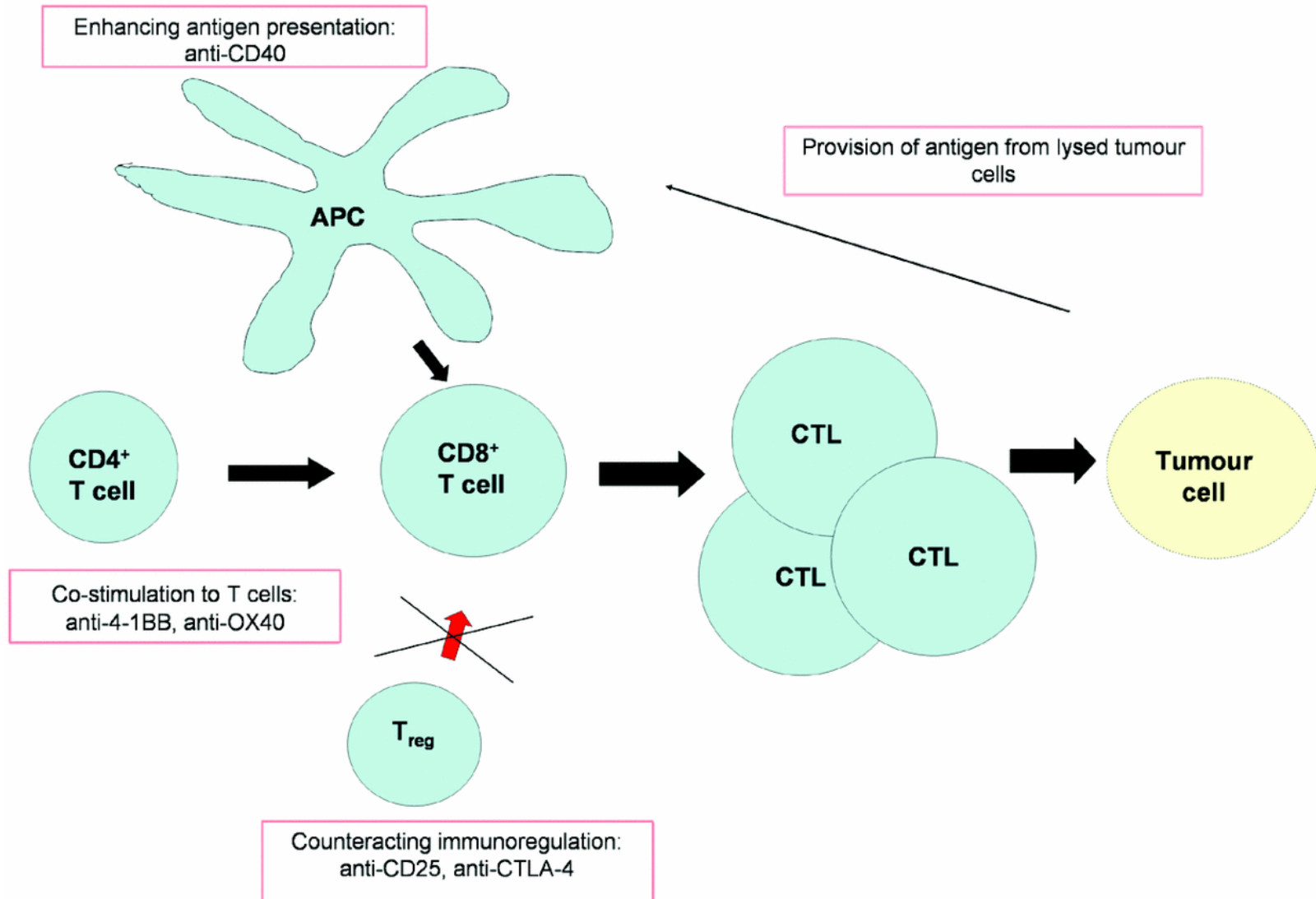
Balance between Th1 and Th2



Cytokine secretion by Th0, Th1 and Th2 cells

Th0	Th1	Th2
IL-2	IL-2	.
IL-3	IL-3	.
IL-4	.	IL-4
IL-5	.	IL-5
IL-6	.	IL-6
IL-10	.	IL-10
IL-13	.	IL-13
INF-gamma	INF-gamma	.
TNF-alpha	TNF-alpha	.
TNF-beta	TNF-beta	TNF-beta
GM-CSF	GM-CSF	GM-CSF

Elimination of Tregs

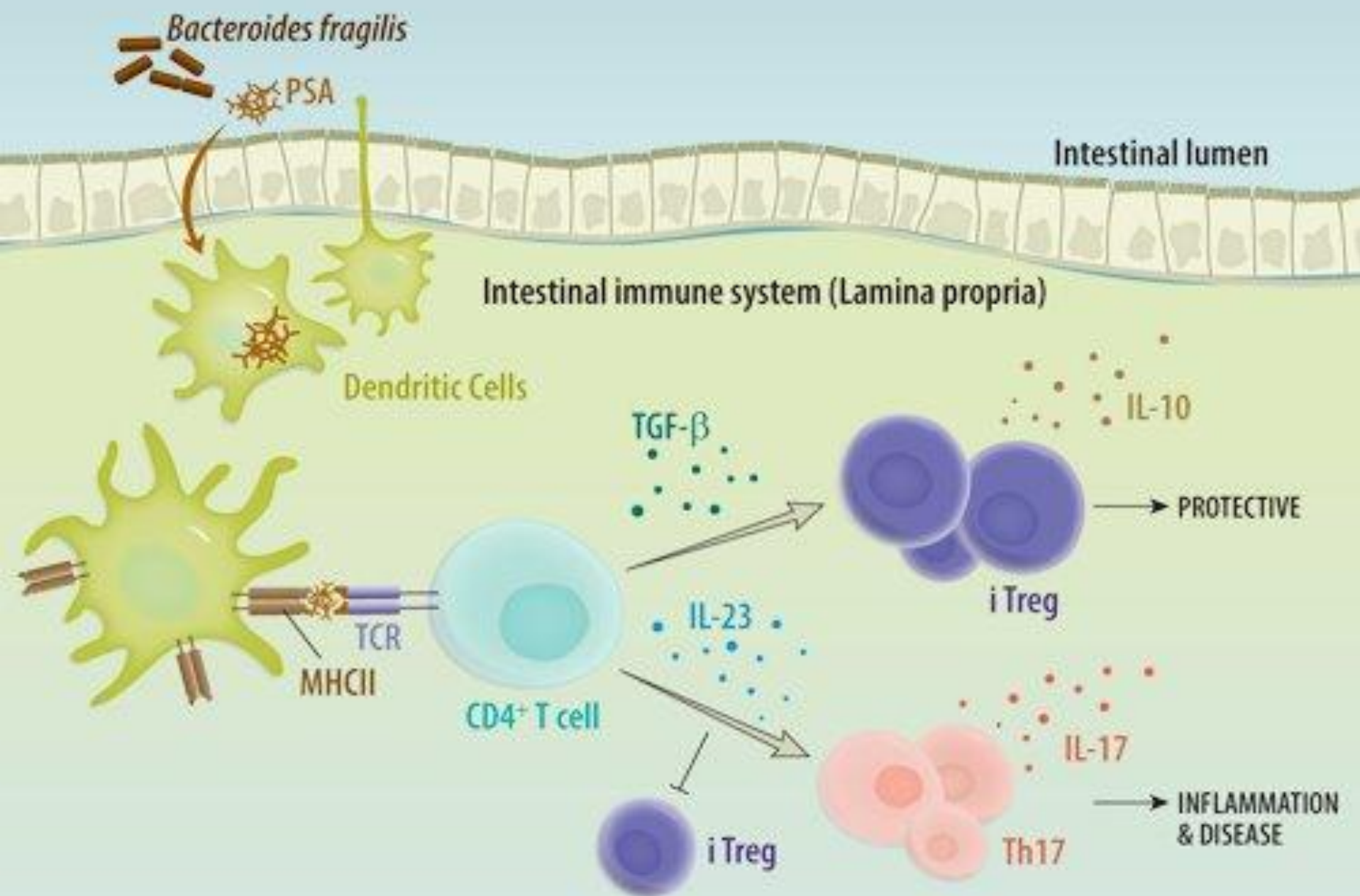


CD4+



Th17

Treg



CD8+



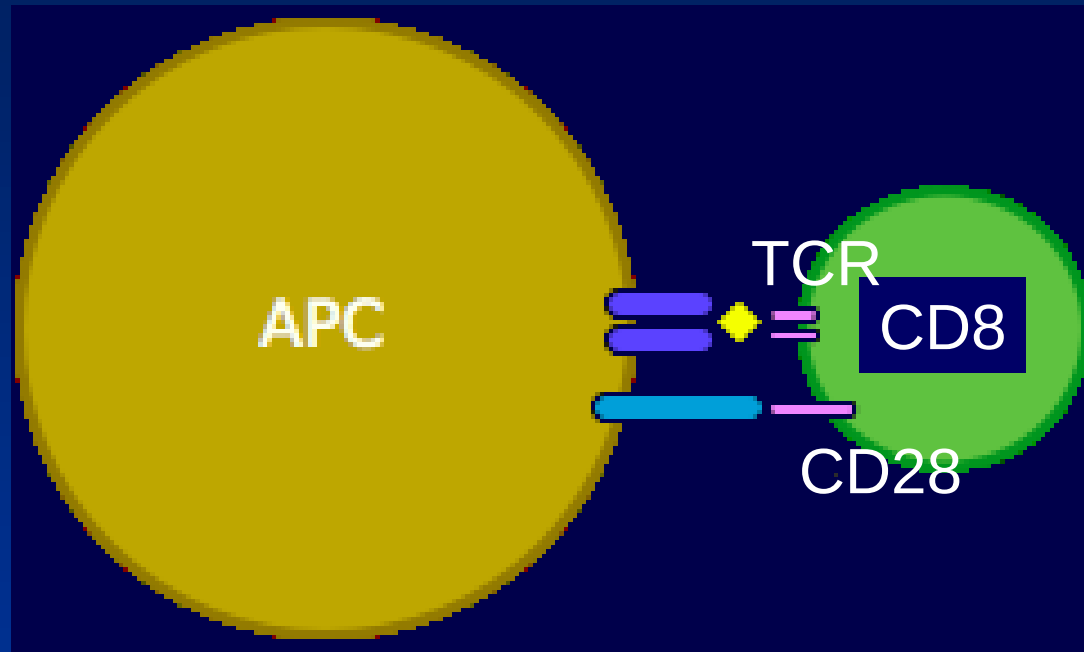
CD28+/CD57-

CD28-/CD57+

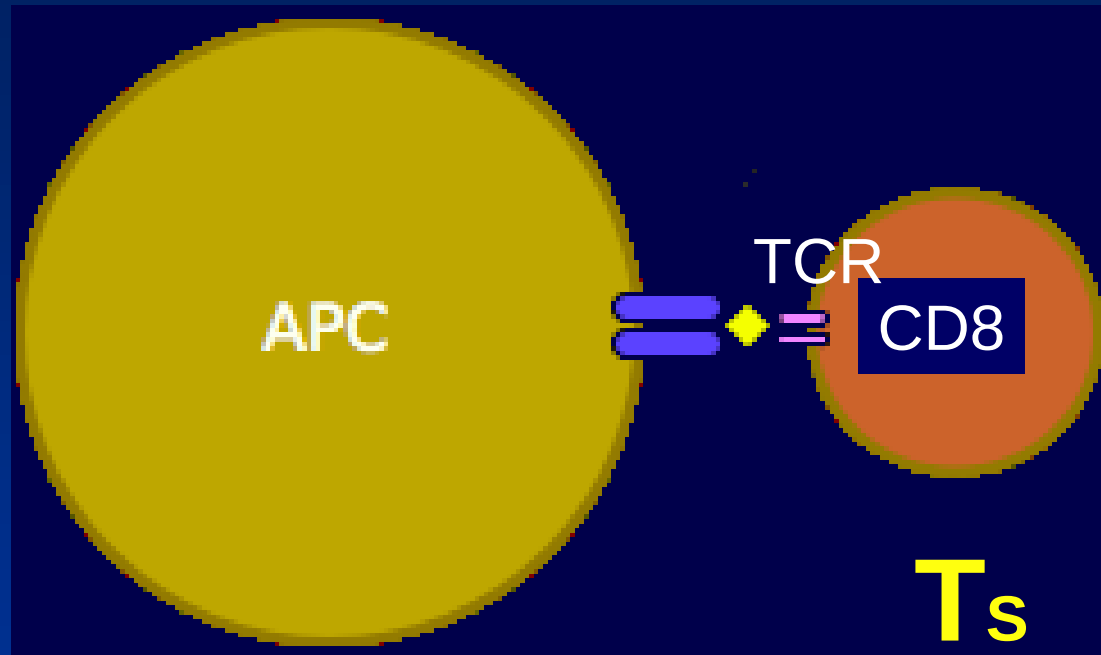
Reciprocal relationship between CD28 ir CD57

CD3+CD8+CD28- = CD8h CD57+

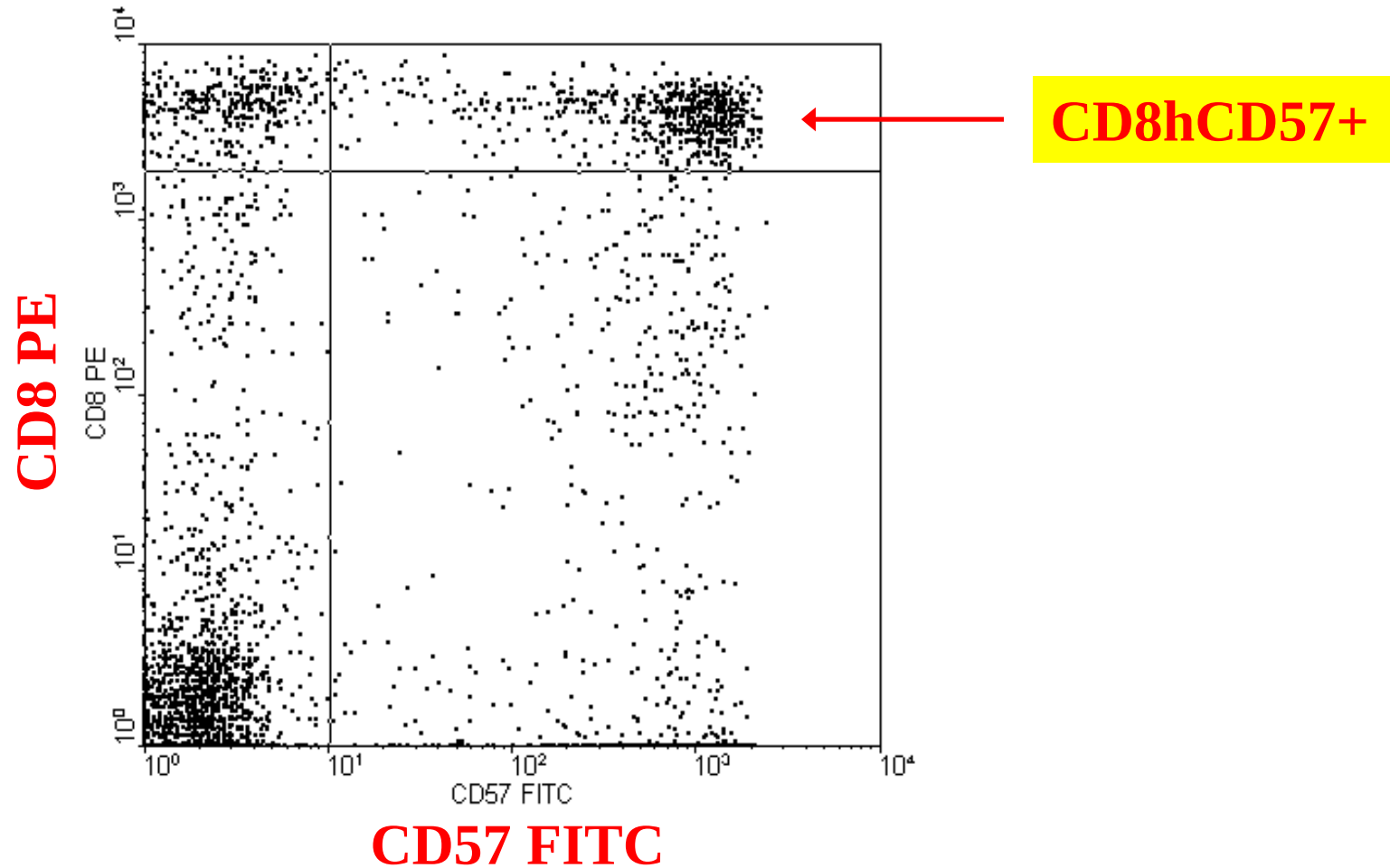
CD8+CD28+



CD8+CD28-



Flow cytometry of CD8+ lymphocytes



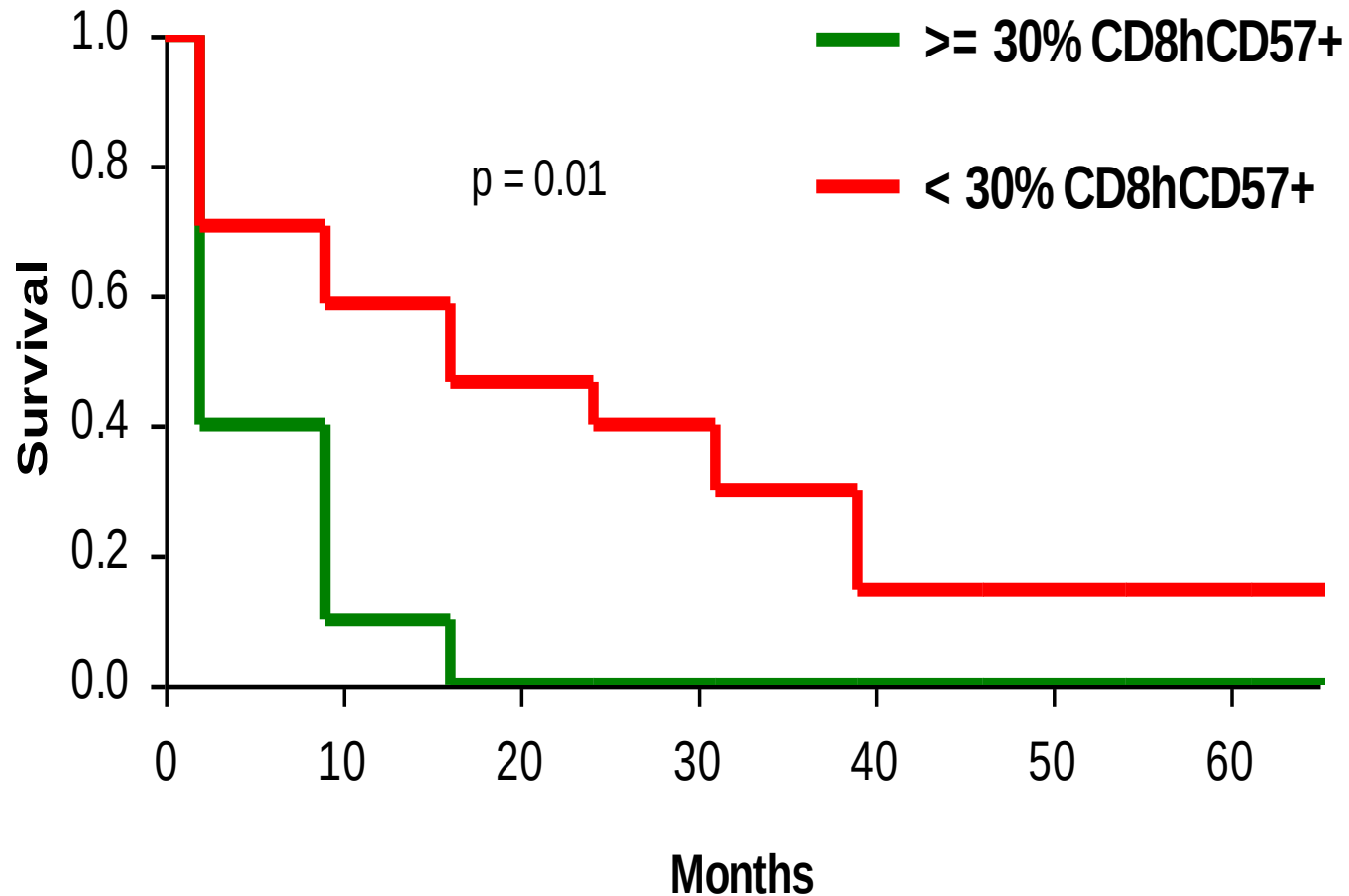
CD8+CD28- (CD8h CD57+)

- Clonal expansion
- Short telomeres
- Anergy
- Increase with age
- Consequence of chronic antigenic stimulation
- Alcoholism

CD8+CD28- (CD8h CD57+)

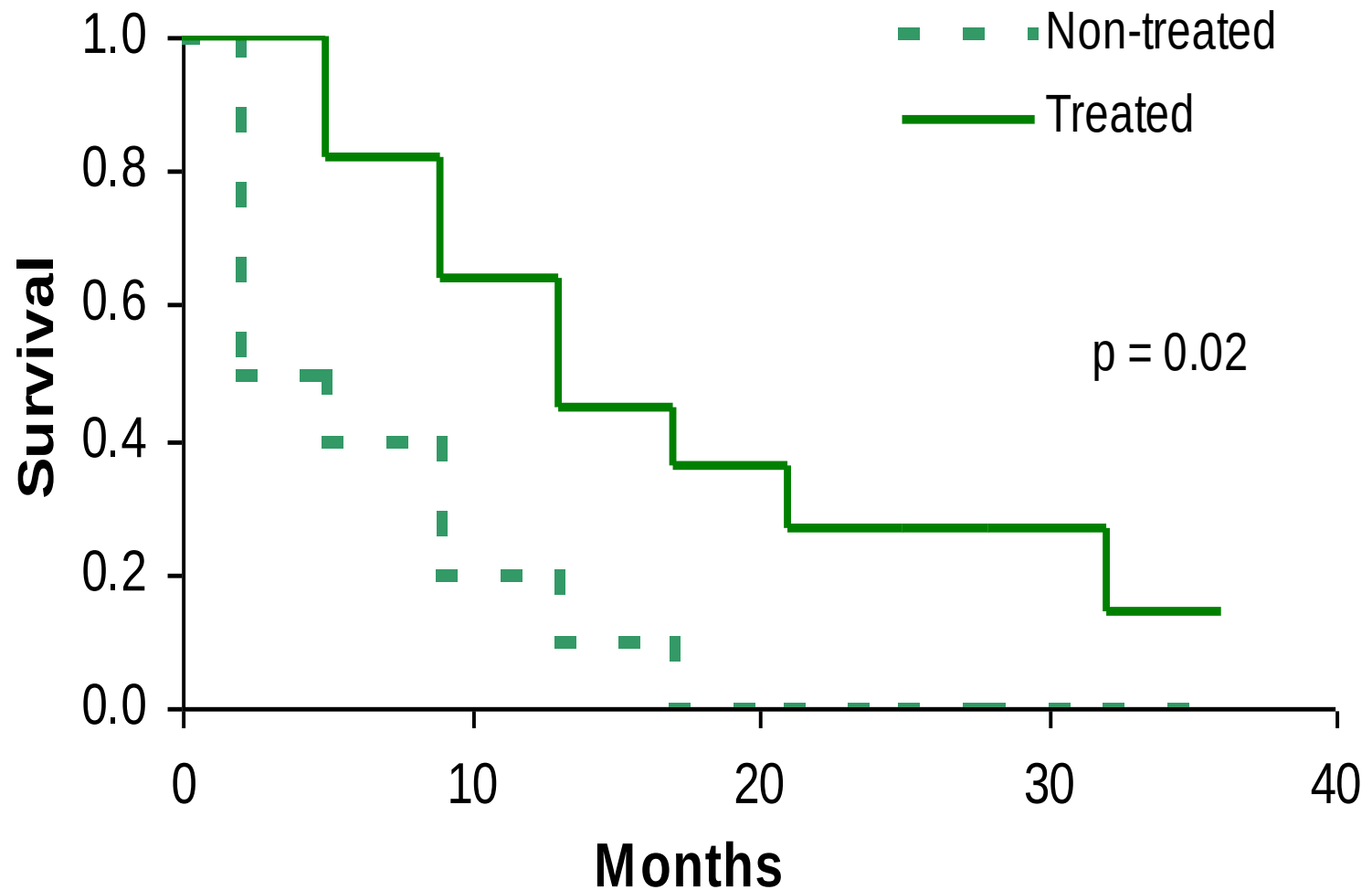
- Biomarker of poor prognosis in RCC
- Biomarker of good prognosis in multiple myeloma, melanoma

CD8hCD57+ lymphocytes in RCC



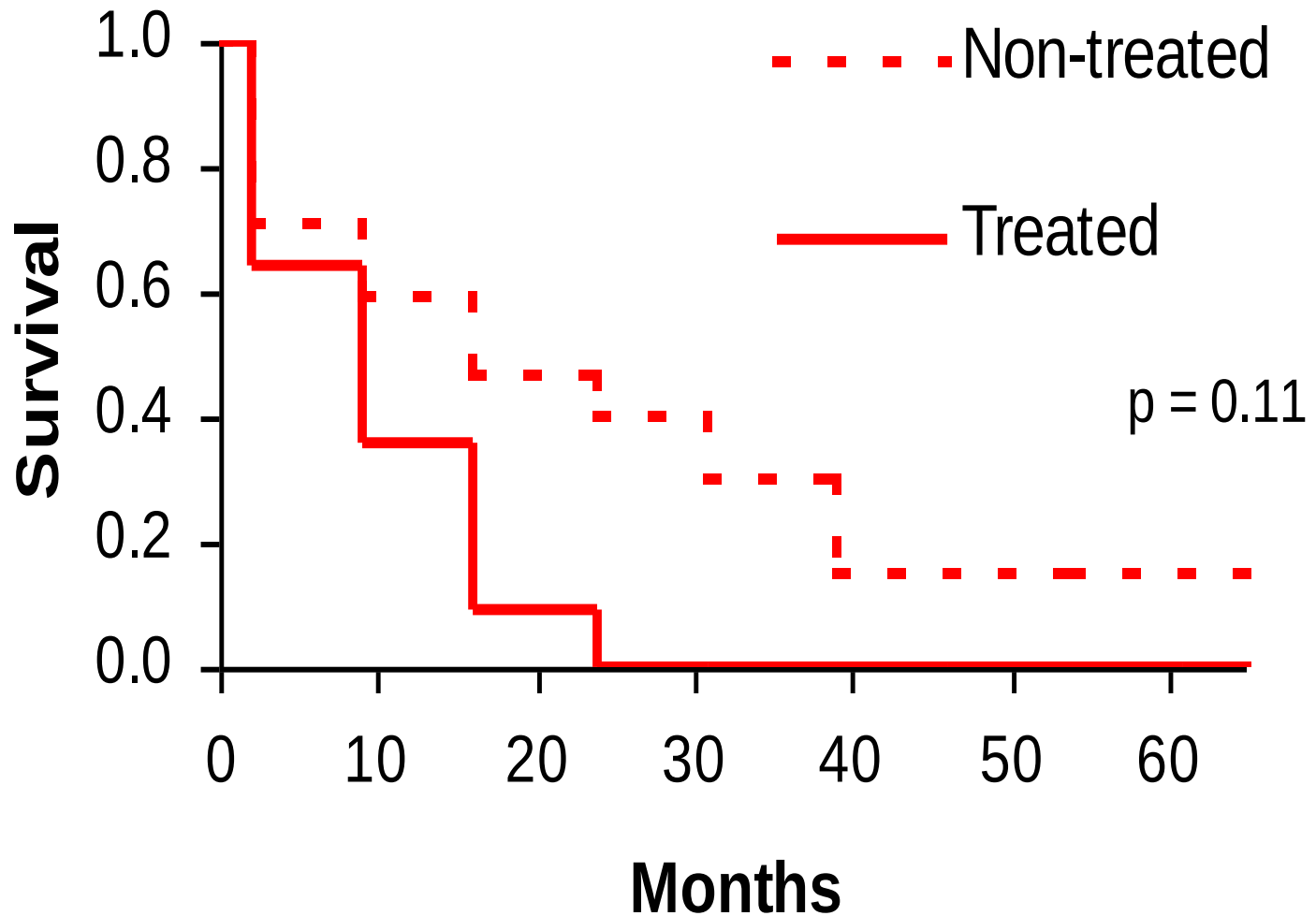
RCC - IFN α

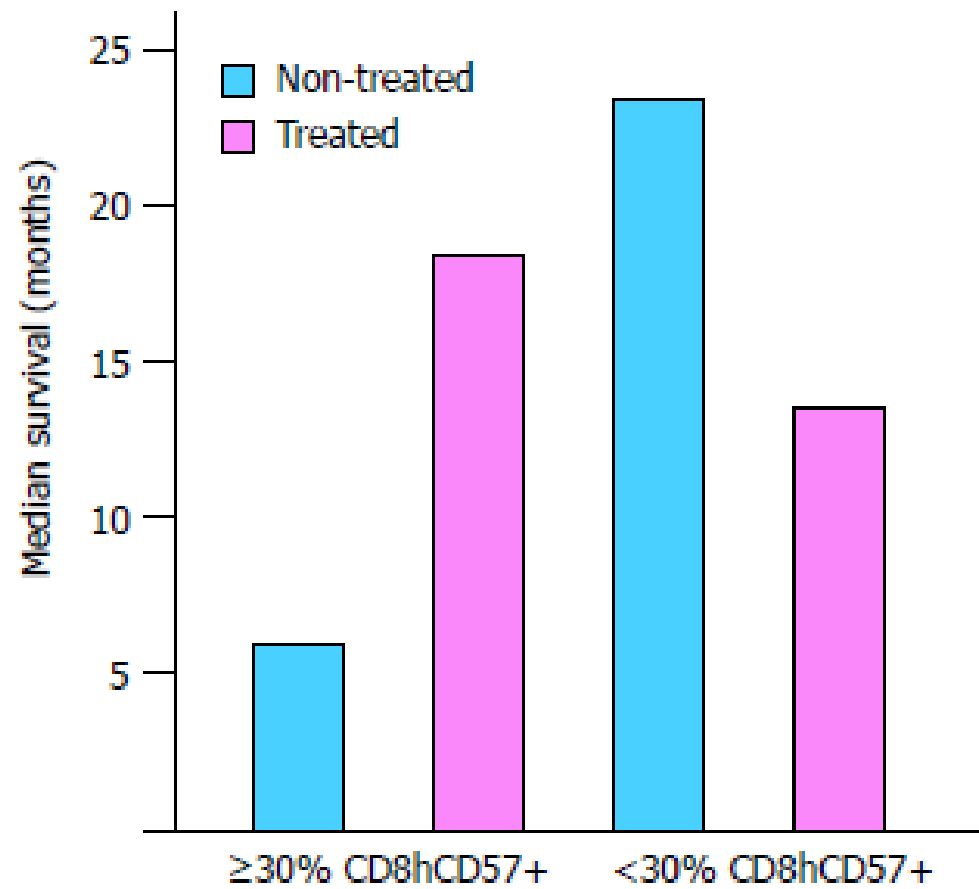
CD8hCD57+ $\geq 30\%$



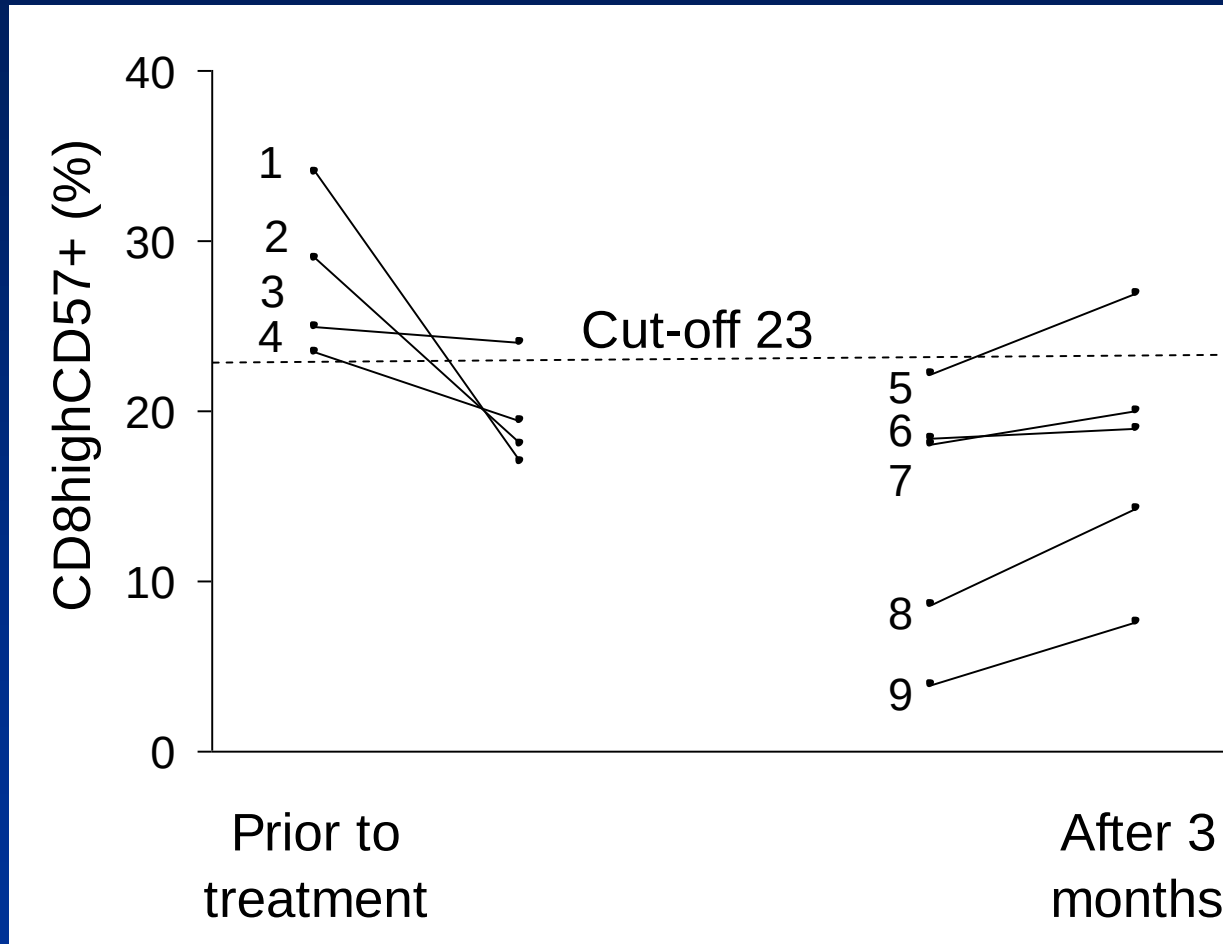
RCC - IFN α

CD8hCD57+ < 30%

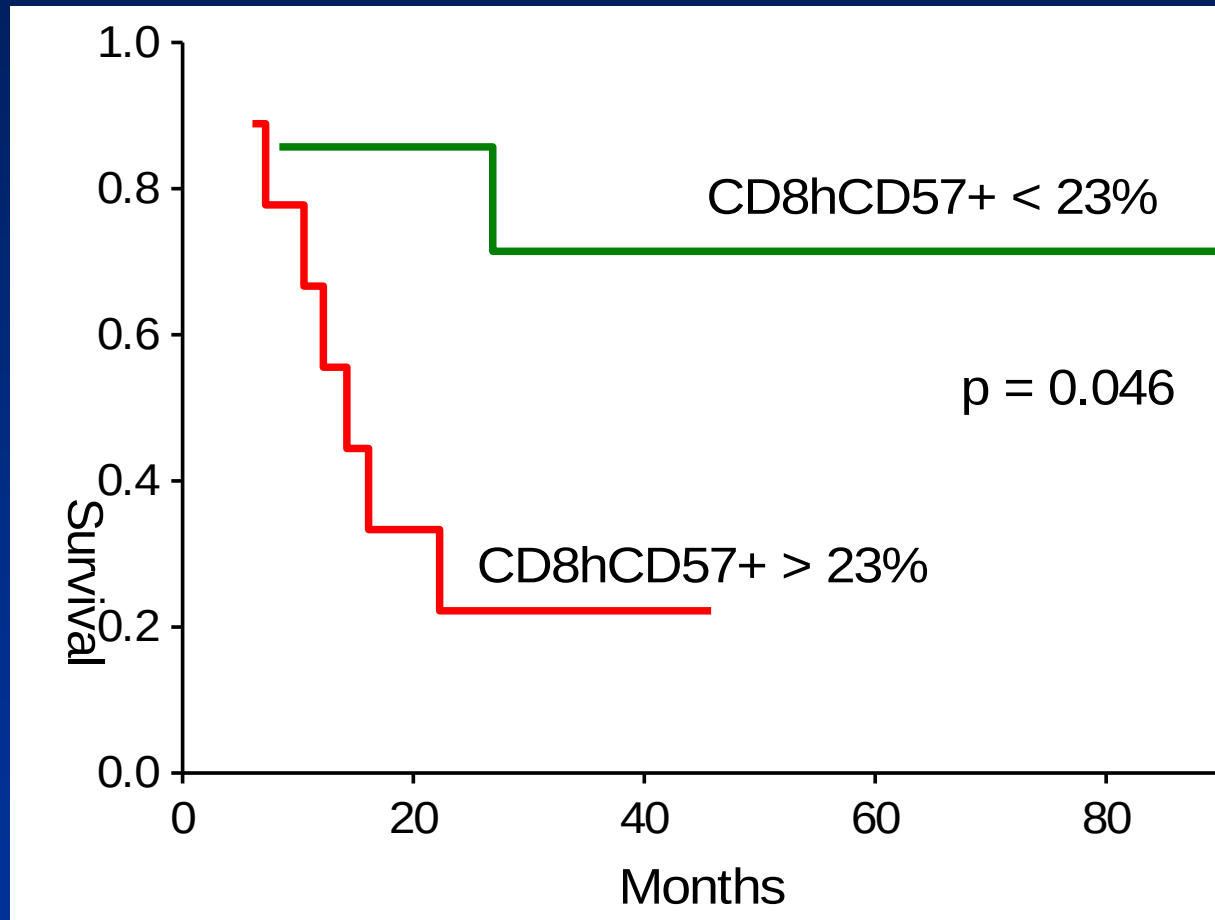




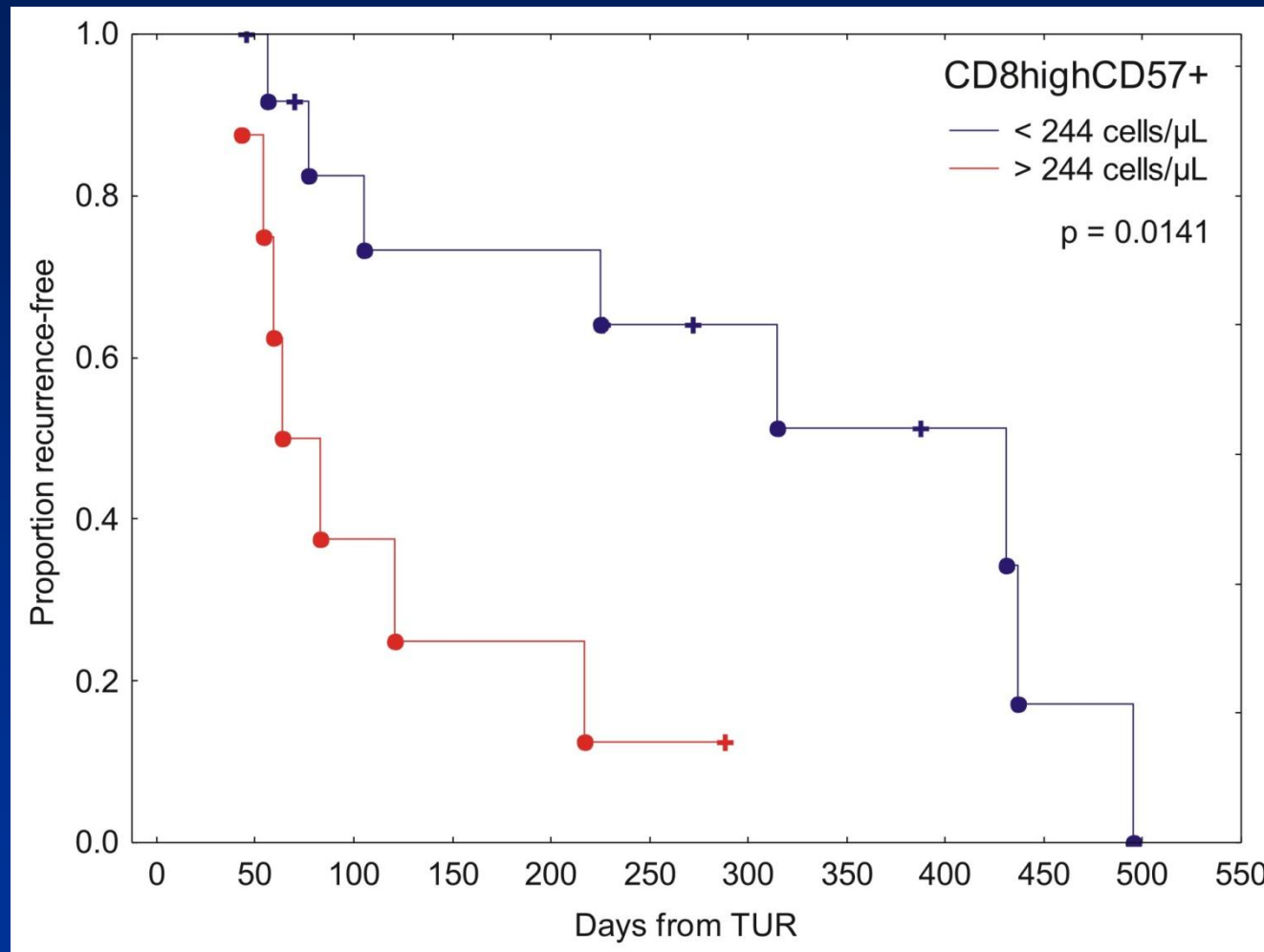
Changes of CD8^hCD57⁺ lymphocytes in melanoma patients after IFN α



Prognostic significance of CD8hCD57+ lymphocytes in melanoma after IFN α

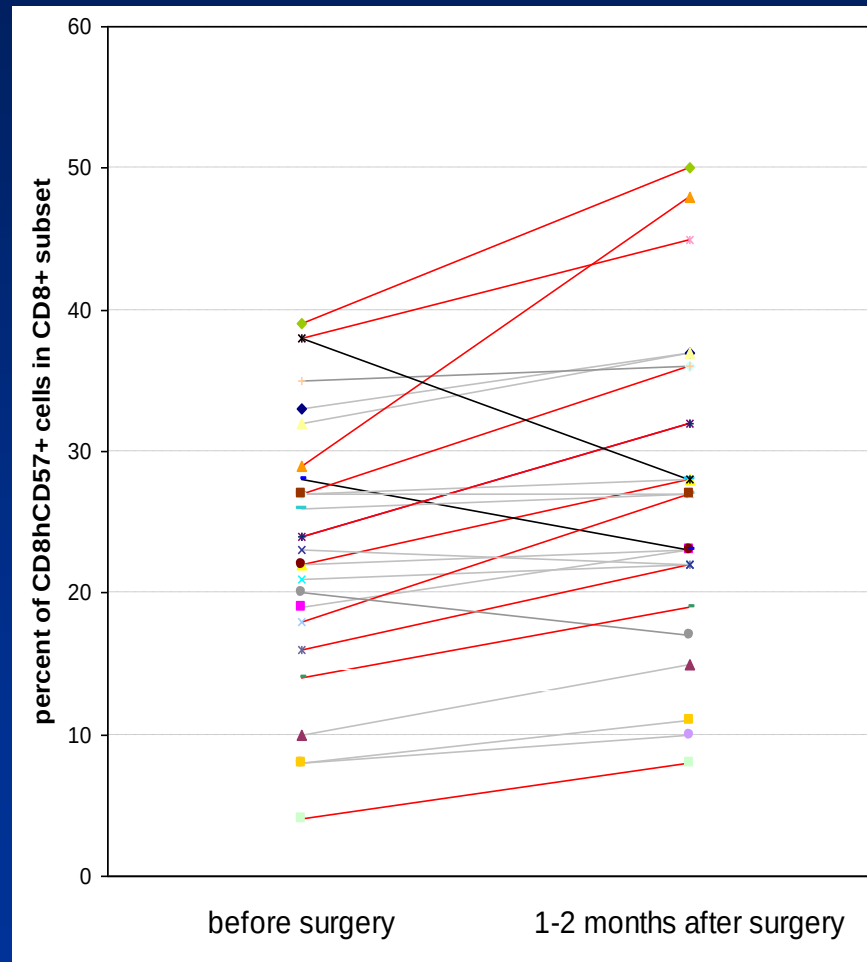


Prognostic significance of CD8^{high}CD57⁺ lymphocytes in bladder carcinoma patients after intravesical IL-2



Characiejus D et al. *Anticancer Res* 31: 699, 2011

Perioperative immunomodulation in RCC



Immunologic Networks

"Promotion of International Cooperation Activities
of Riga Stradiņš University in Science
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