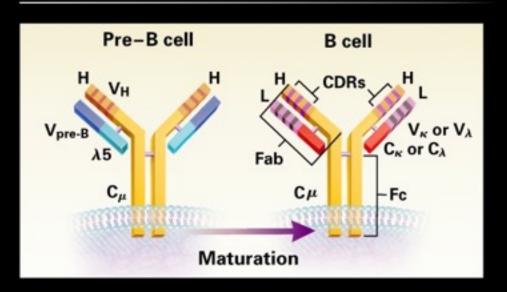
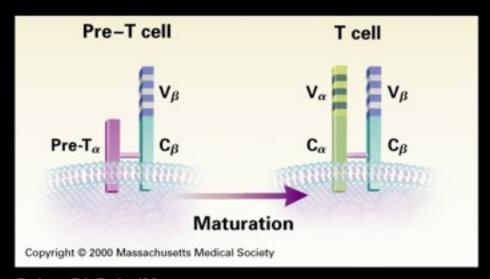
Structure of Immature and Mature B-Cell and T-Cell Antigen Receptors





Delves PJ, Roitt IM. The Immune System (Part1). N Engl J Med 2000;343:37-49.



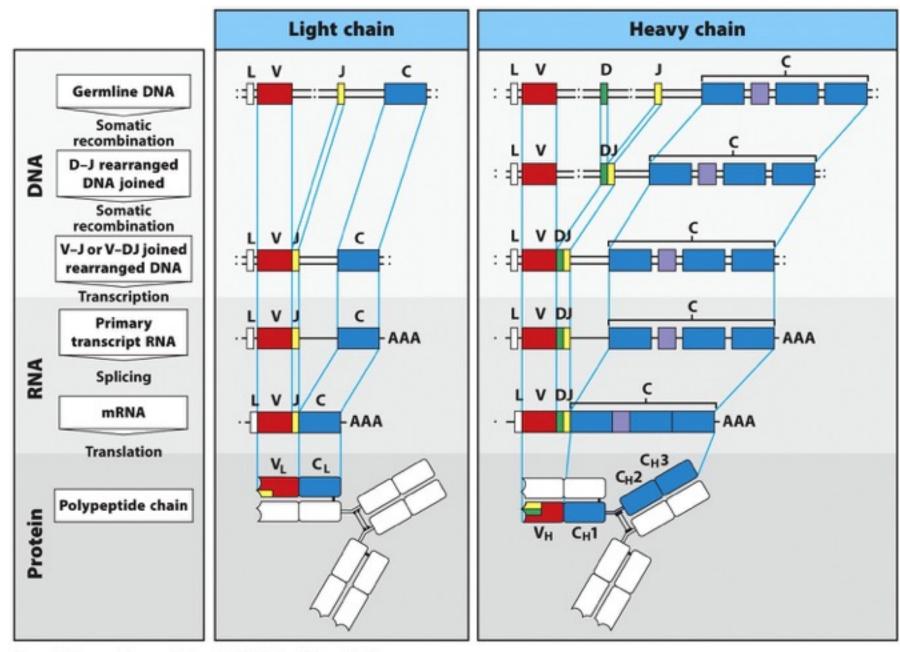


Figure 5.1 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

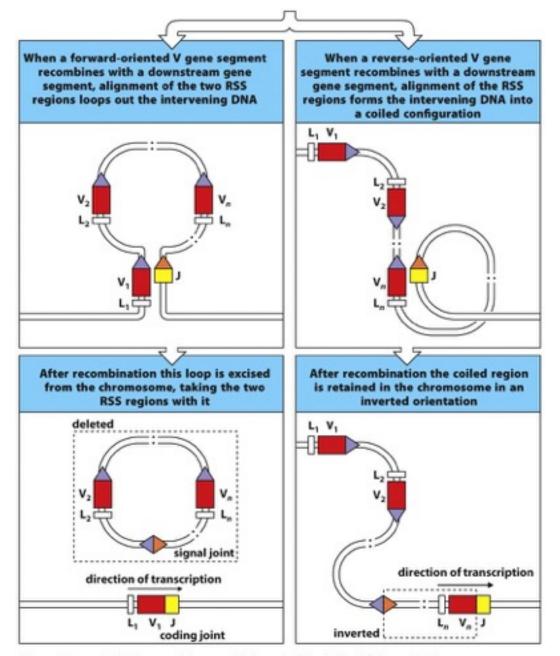


Figure 5.5 part 2 of 2 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

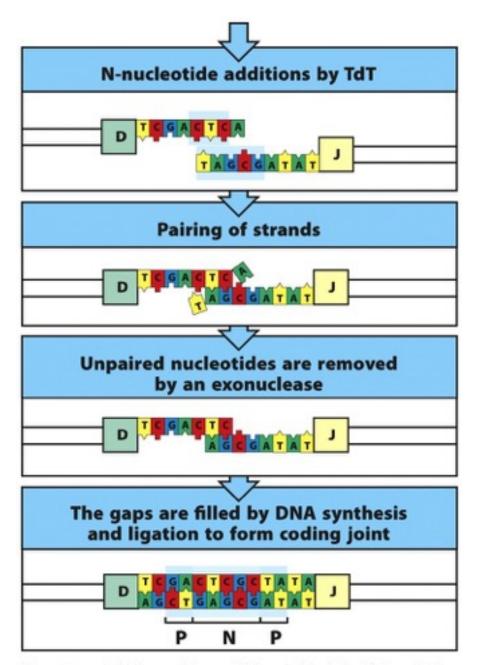


Figure 5.7 part 2 of 2 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

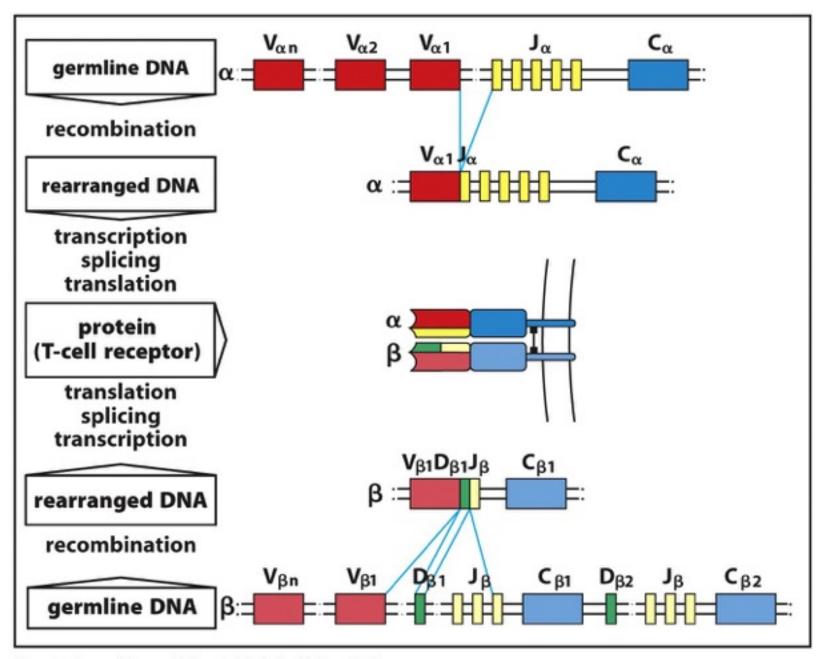
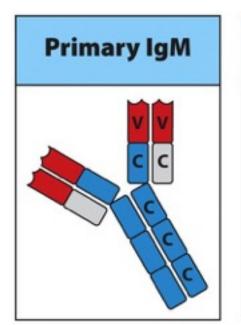
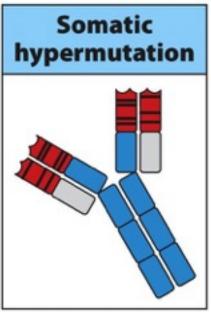


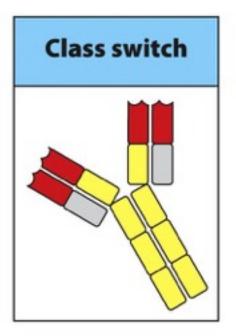
Figure 5.9 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

Element	Immunoglobulin		α:β T-cell receptors		
	н	κ+λ	β	α	
Variable segments (V)	~40	~70	52	~70	
Diversity segments (D)	23	0	2	0	
D segments read in three frames	rarely	-	often	-	
Joining segments (J)	6	5(κ) 4(λ)	13	61	
Joints with N- and P-nucleotides	2	50% of joints	2	1	
Number of V gene pairs	1.9 x 10 ⁶		5.8 x 10 ⁶		
Junctional diversity	~3 x 10 ⁷		~2 x 10 ¹¹		
Total diversity	~5 x 10 ¹³		~10 ¹⁸		

Figure 5.11 Janeway's Immunobiology, 8ed. (© Garland Science 2012)







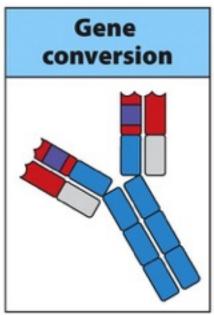


Figure 5.20 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

Event	Process	Nature of change	Process occurs in:	
			B cells	T cells
V-region assembly	Somatic recombination of DNA	Irreversible	Yes	Yes
Junctional diversity	Imprecise joining, N-sequence insertion in DNA	Irreversible	Yes	Yes
Transcriptional activation	Activation of promoter by proximity to the enhancer	Irreversible but regulated	Yes	Yes
Switch recombination	Somatic recombination of DNA	Irreversible	Yes	No
Somatic hypermutation	DNA point mutation	Irreversible	Yes	No
IgM, IgD expression on surface	Differential splicing of RNA	Reversible, regulated	Yes	No
Membrane vs secreted form	Differential splicing of RNA	Reversible, regulated	Yes	No

Figure 5.26 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

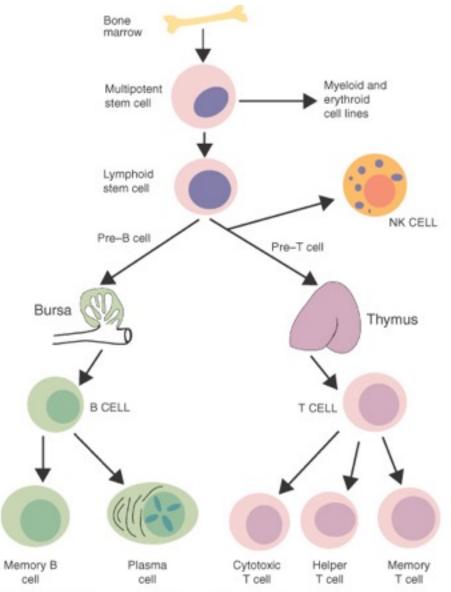


FIGURE 11-6 Development of T and B lymphocytes. Both arise from bone marrow precursors. B cells develop in the bursa, Peyer's patches, or bone marrow. T cells develop in the thymus. Natural killer (NK) cells are a third population of lymphocytes that are distinct from T cells and B cells.

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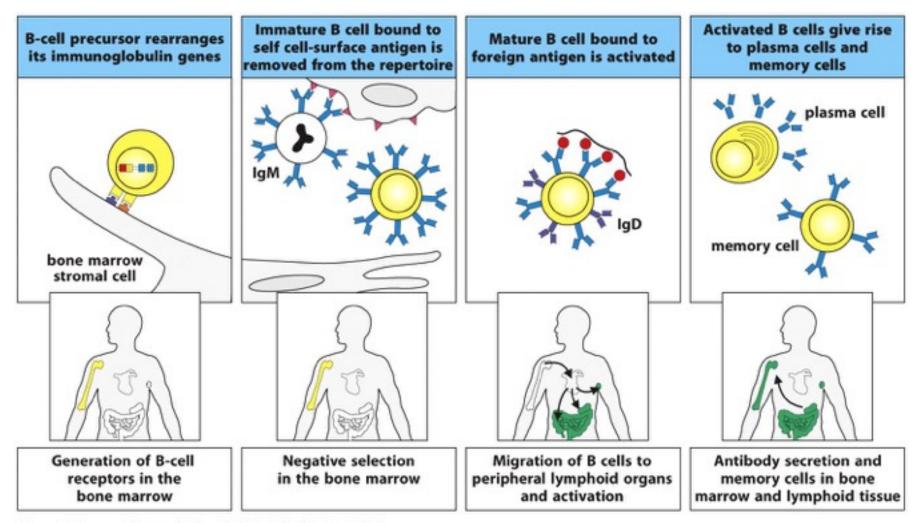


Figure 8.1 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

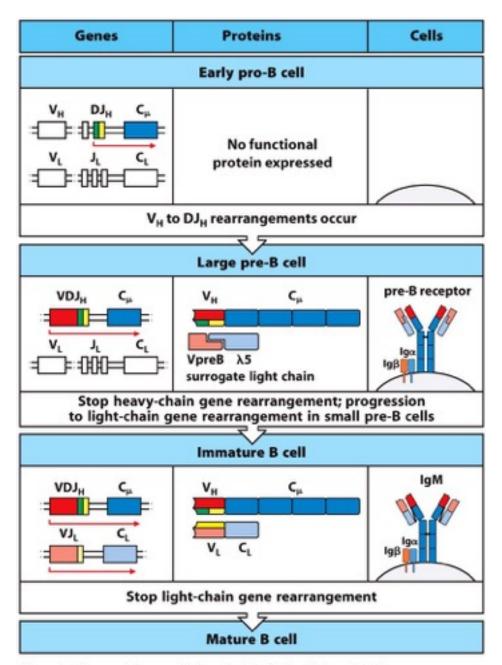


Figure 8.6 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

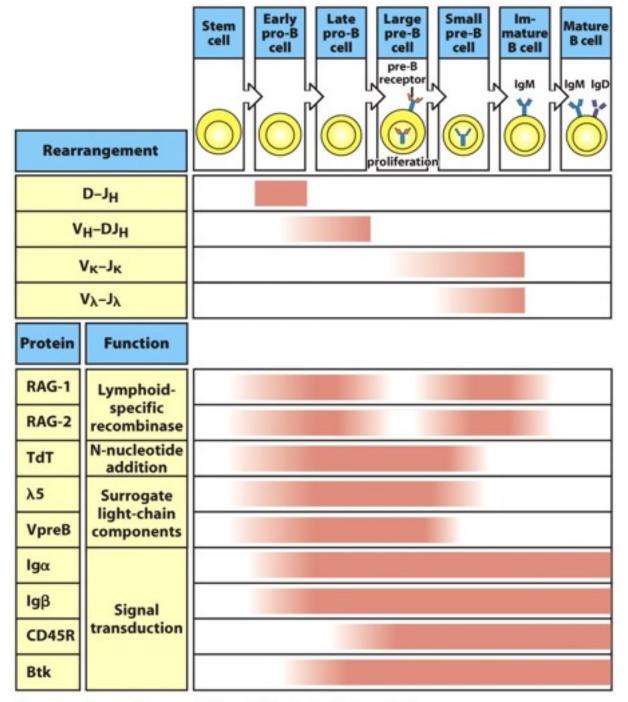


Figure 8.10 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

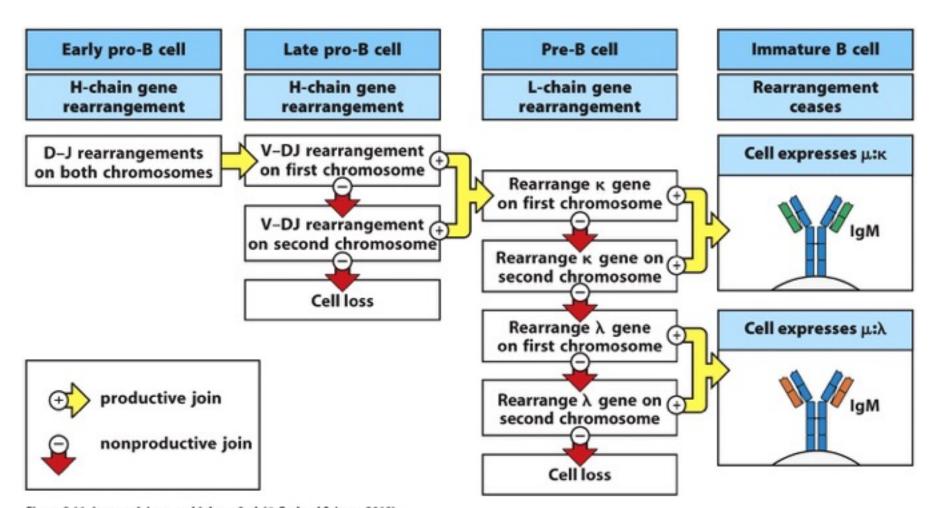


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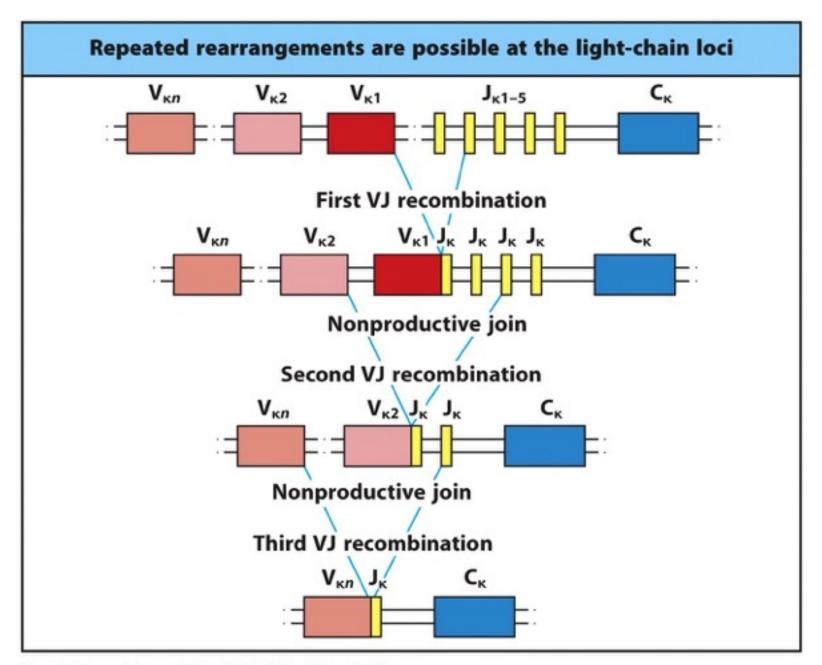


Figure 8.9 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

Immature B cell (bone marrow) Low-affinity Multivalent Soluble No non-cross-linking self molecule self reaction self molecule self molecule IgM 🍠 lgM IgM Clonal deletion or Migrates to Migrates to Migrates to receptor editing periphery periphery periphery ulow Snormal OF IgD **IgD** IgM Apoptosis or generation Mature B cell Mature B cell Anergic B cell of non-autoreactive (clonally ignorant) mature B cell

Figure 8.12 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

Bone marrow

Open repertoire of mature B cells.

Tolerance induction

Blood and secondary lymphoid tissues

Additional tolerance induction. Self-tolerant immature B cells and anergized B cells

No positive selection: B cells fail to enter lymphoid follicles

B cells have a half-life of about 3 days

Positive selection: B cells successfully enter lymphoid follicles

Long-lived mature recirculating naive B cells (half-life about 3–8 weeks)

Stimulation by antigen

Longer-lived mature recirculating memory B cells. Express high-affinity IgG, IgA, or IgE

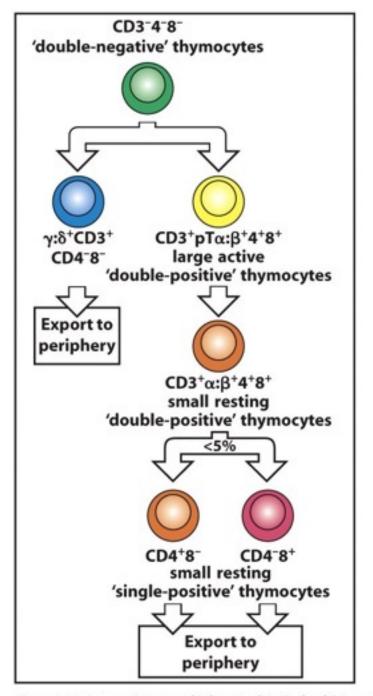


Figure 8.19 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

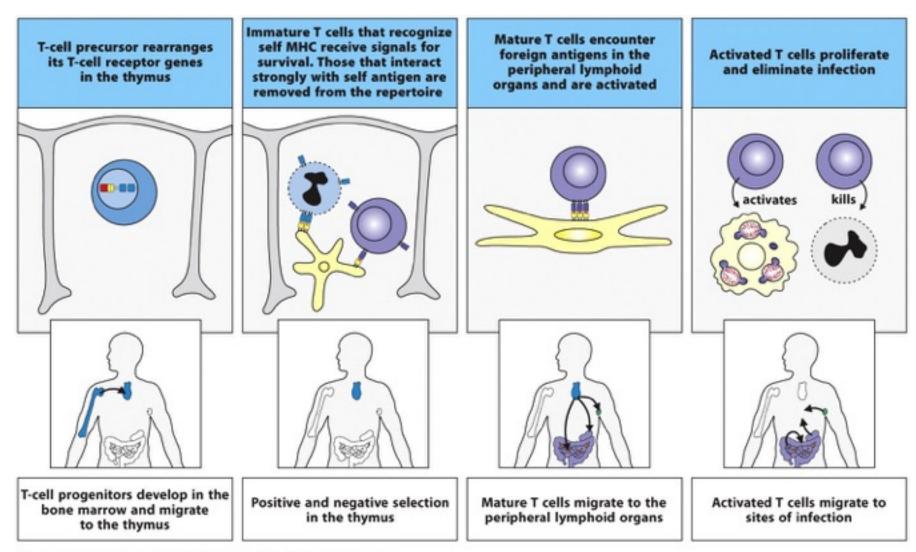
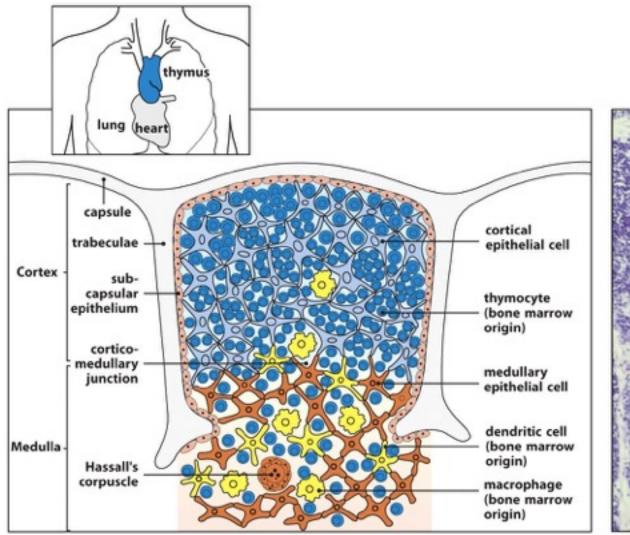


Figure 8.14 Janeway's Immunobiology, 8ed. (© Garland Science 2012)



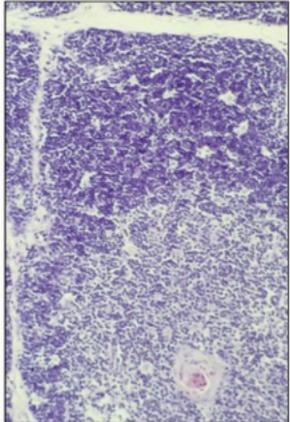
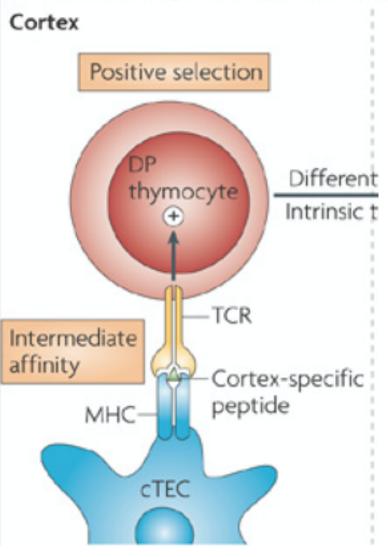


Figure 8.15 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

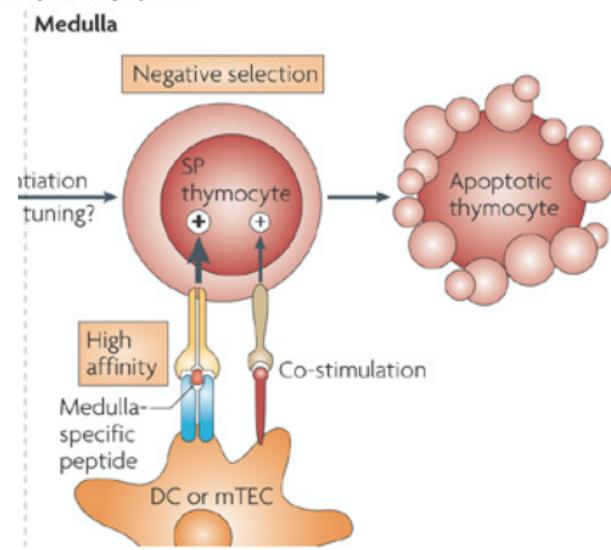
a Deletion by high-affinity medulla-specific peptide



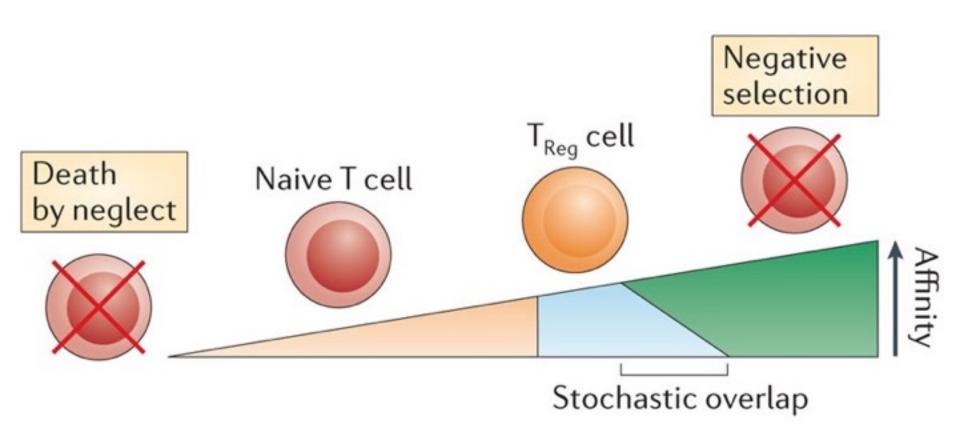
Seleção Positiva determinada pelo MHC próprio

a Deletion by high-affinity medulla-specific peptide

Seleção Negativa determinada pelos antígenos próprios



Quatro destinos para os linfócitos T



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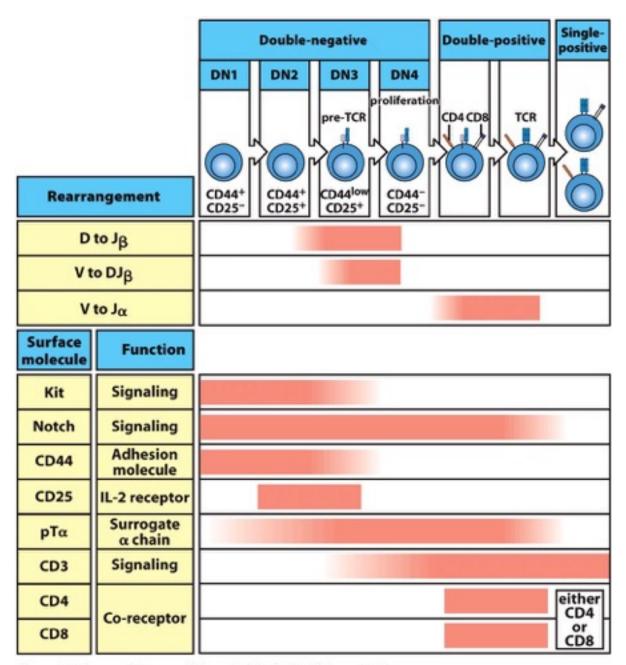


Figure 8.20 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

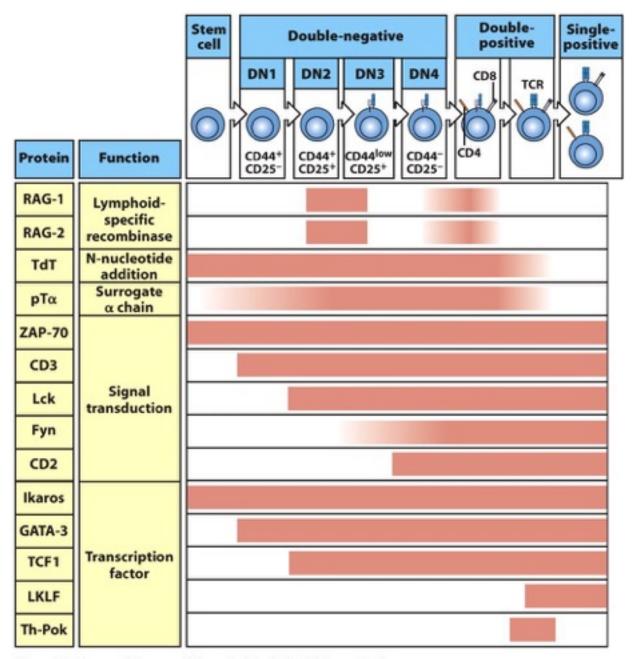


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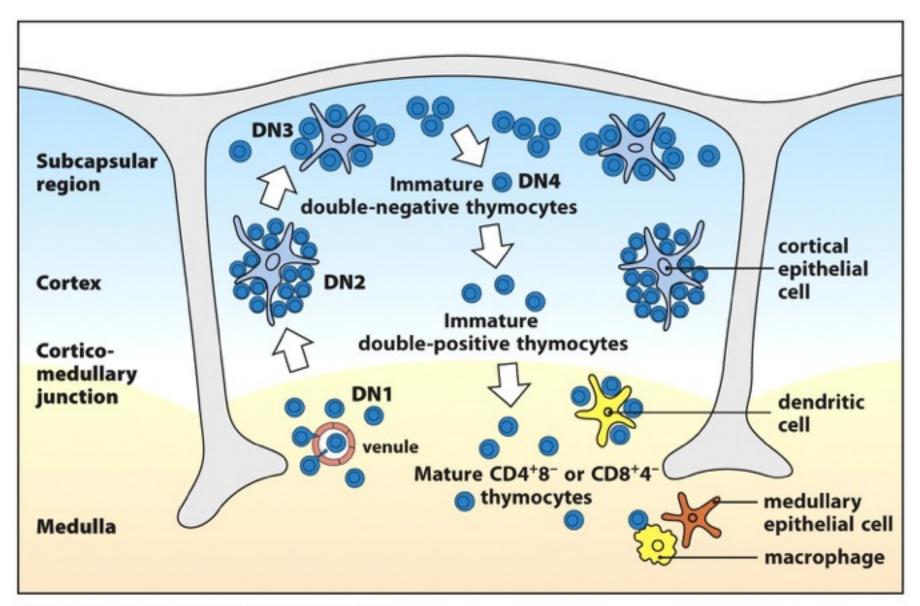


Figure 8.21 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

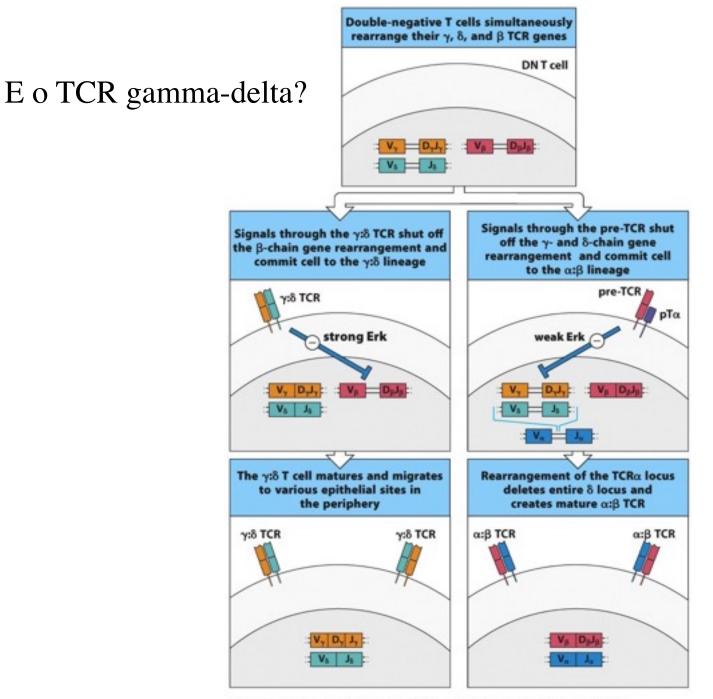


Figure 8.22 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

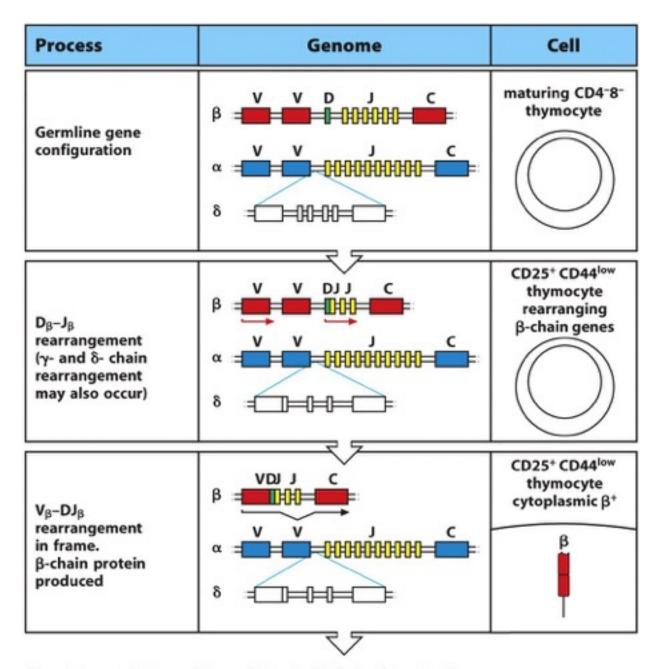


Figure 8.25 part 1 of 2 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

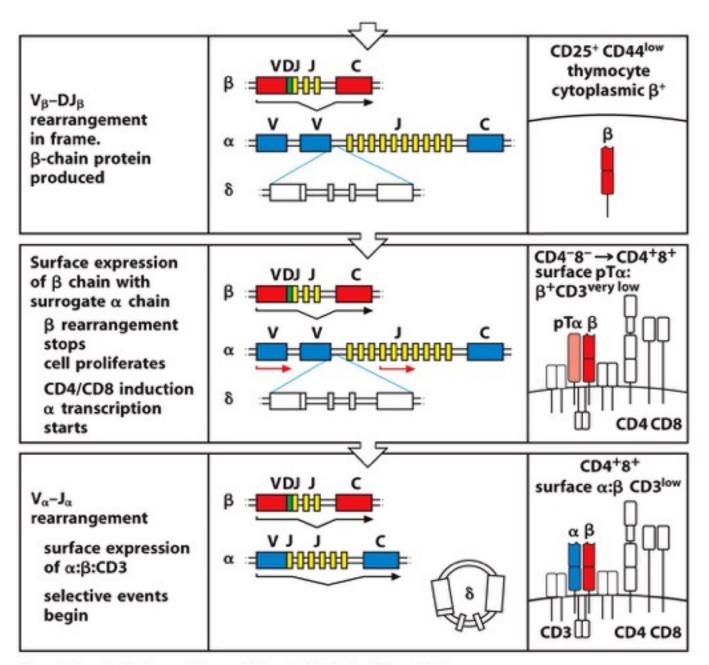


Figure 8.25 part 2 of 2 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

Transgenic receptor recognizing MHC class I Immature CD4*8* double-positive T cells Only CD8* T cells mature

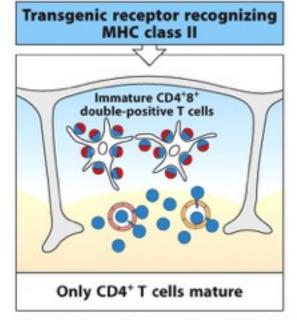


Figure 8.30 Janeway's Immunobiology, 8ed. (© Garland Science 2012)