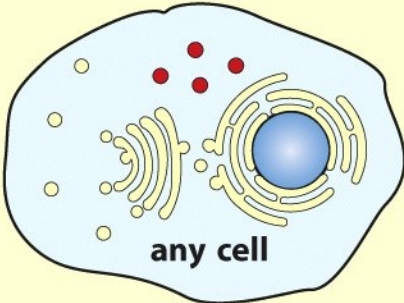
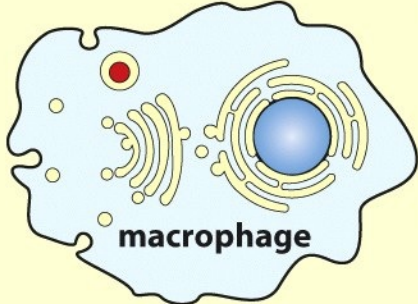
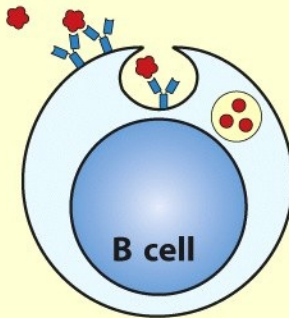
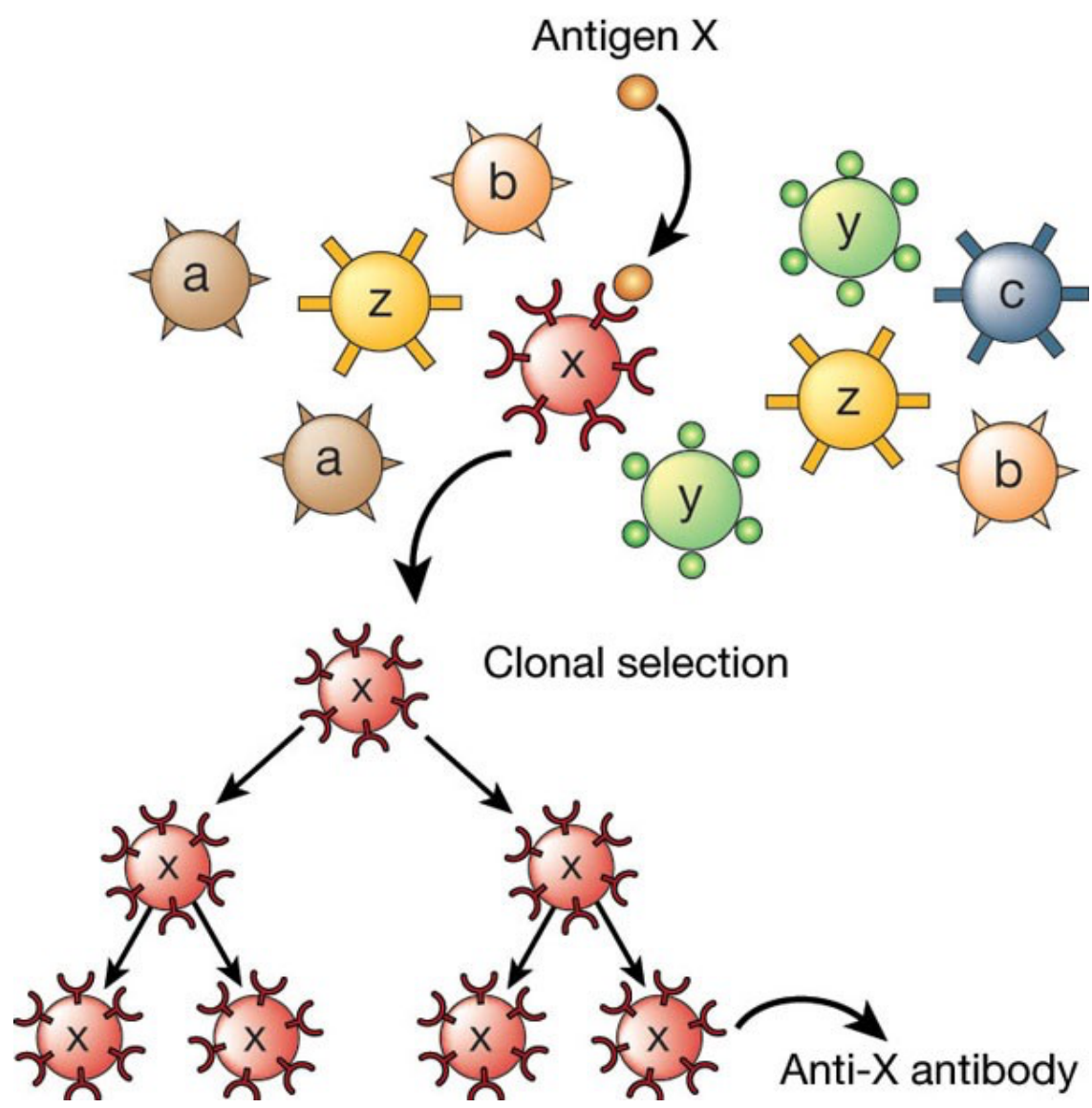
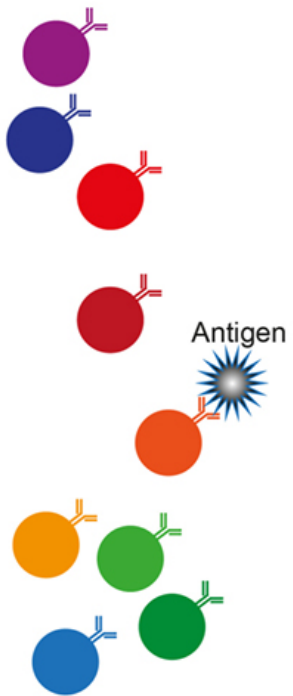


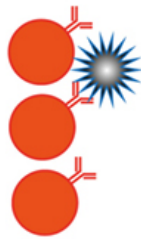
	Cytosolic pathogens	Intravesicular pathogens	Extracellular pathogens and toxins
			
Degraded in	Cytosol	Endocytic vesicles (low pH)	Endocytic vesicles (low pH)
Peptides bind to	MHC class I	MHC class II	MHC class II
Presented to	Effector CD8 T cells	Effector CD4 T cells	Effector CD4 T cells



Pre-infection
immune repertoire



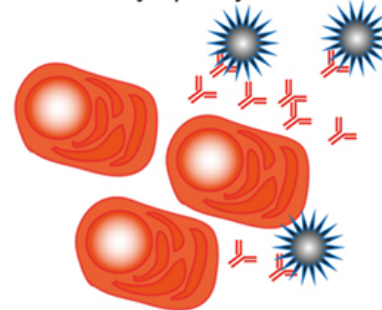
Activated,
proliferating cells



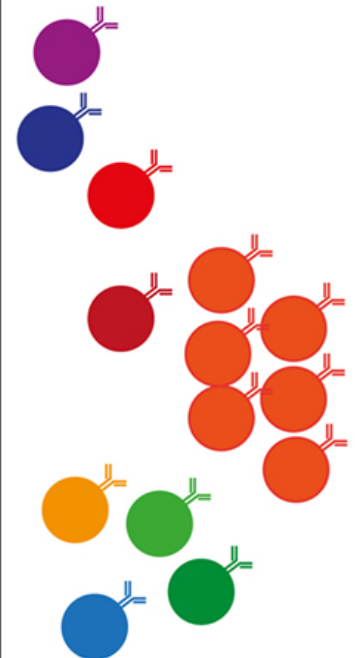
Antigen-specific
memory lymphocytes



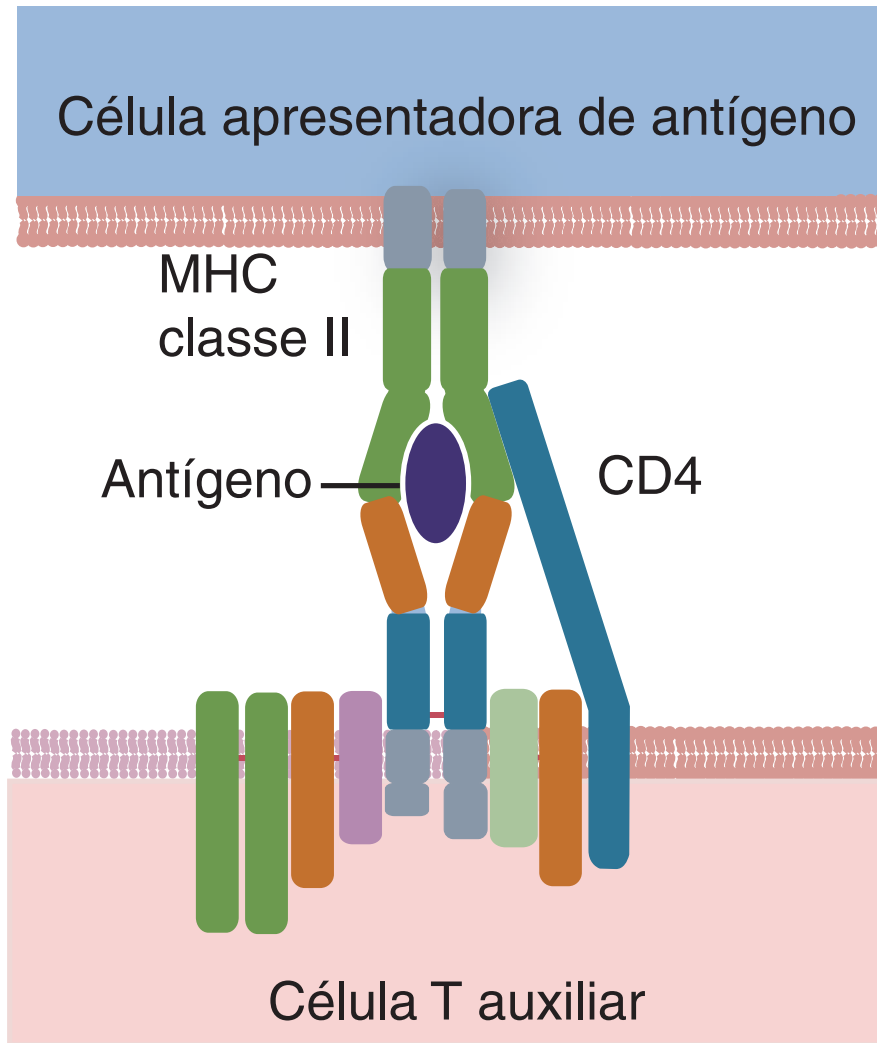
Effector lymphocytes



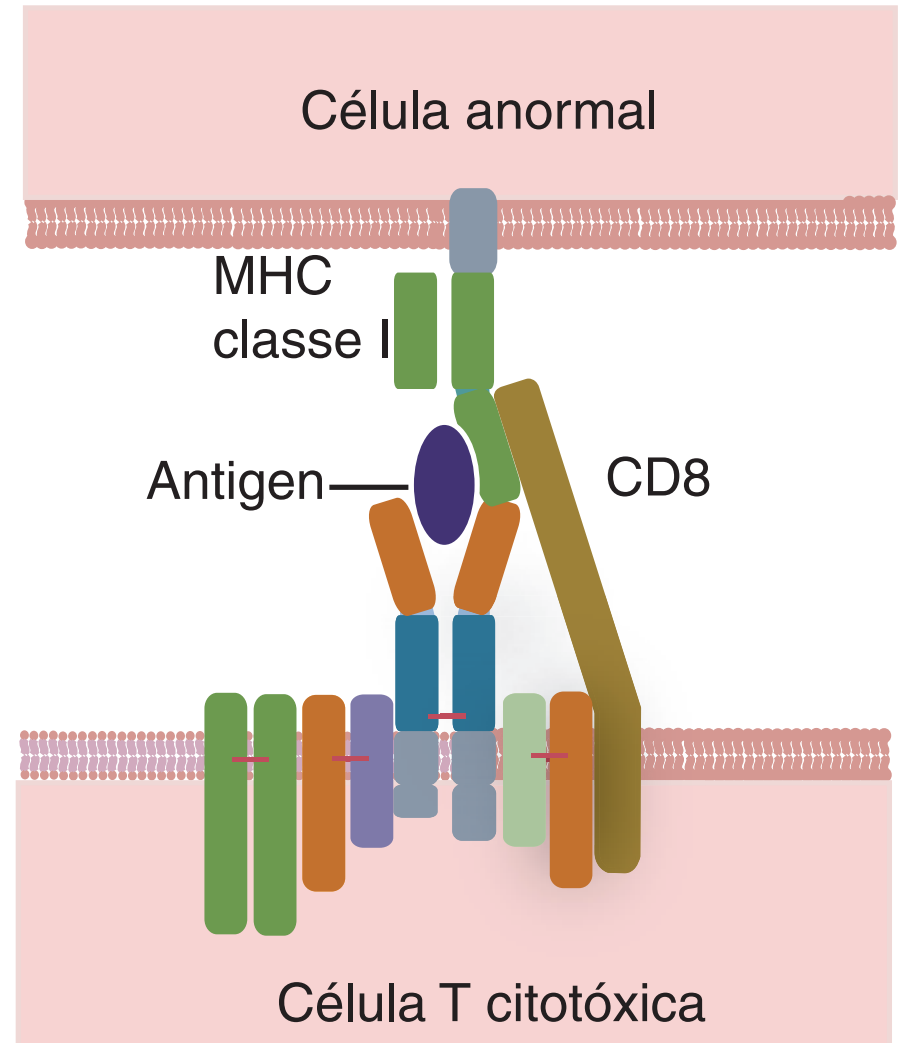
Post-infection
immune repertoire;
“Immune memory”

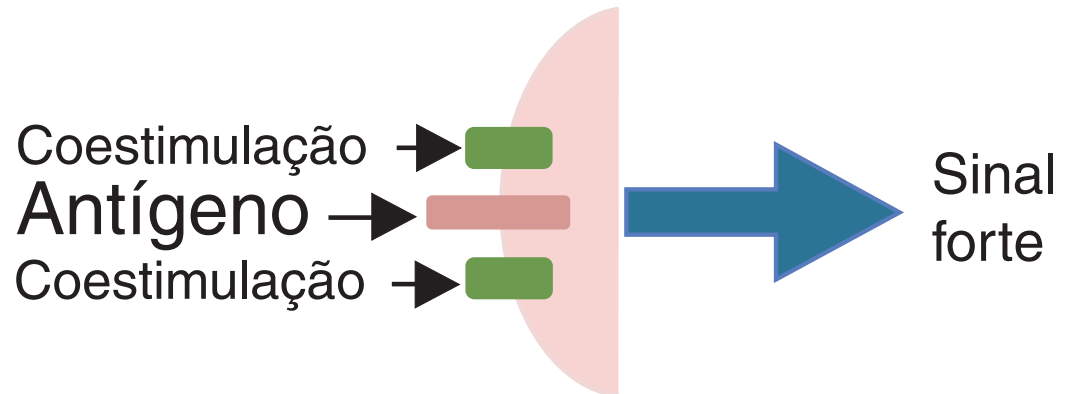
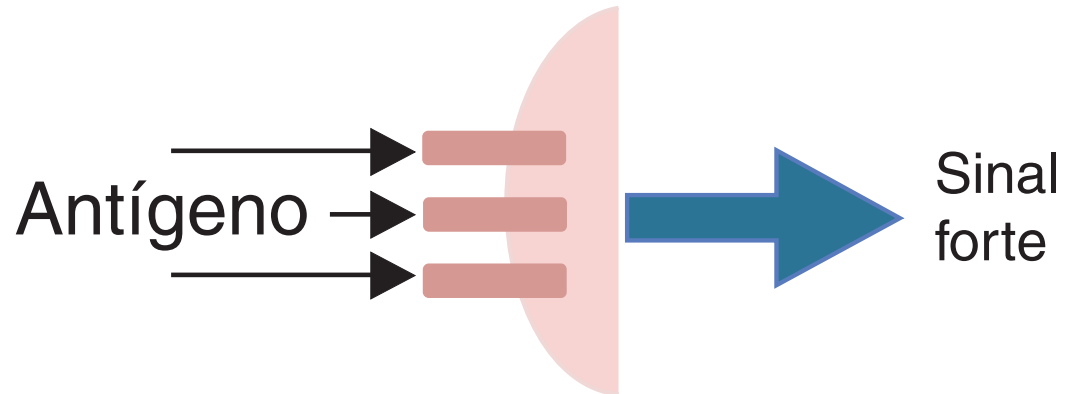
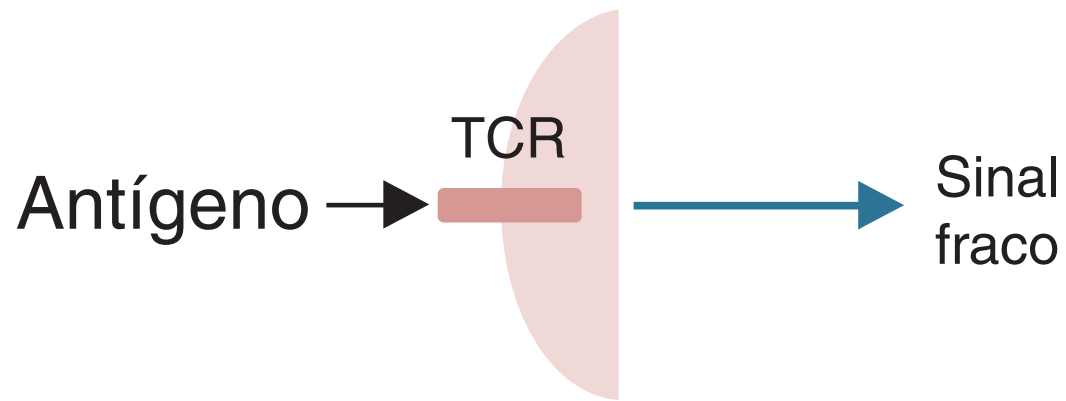


MHC-II → CD4



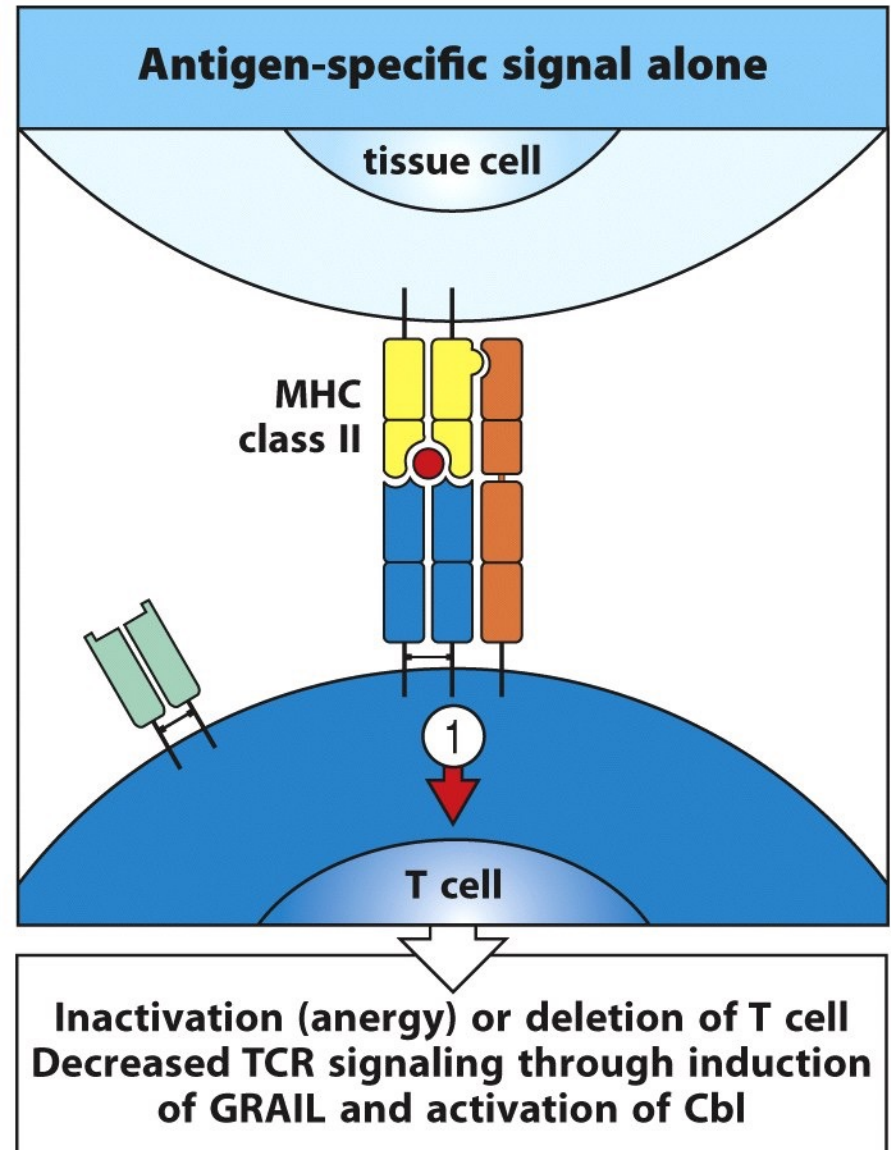
MHC-I → CD8





Apenas TCR + antígeno

Na ausência de patógenos, as fendas do MHC são ocupadas por peptídeos próprios.



[TCR + antígeno] + co-estímulo = ativação

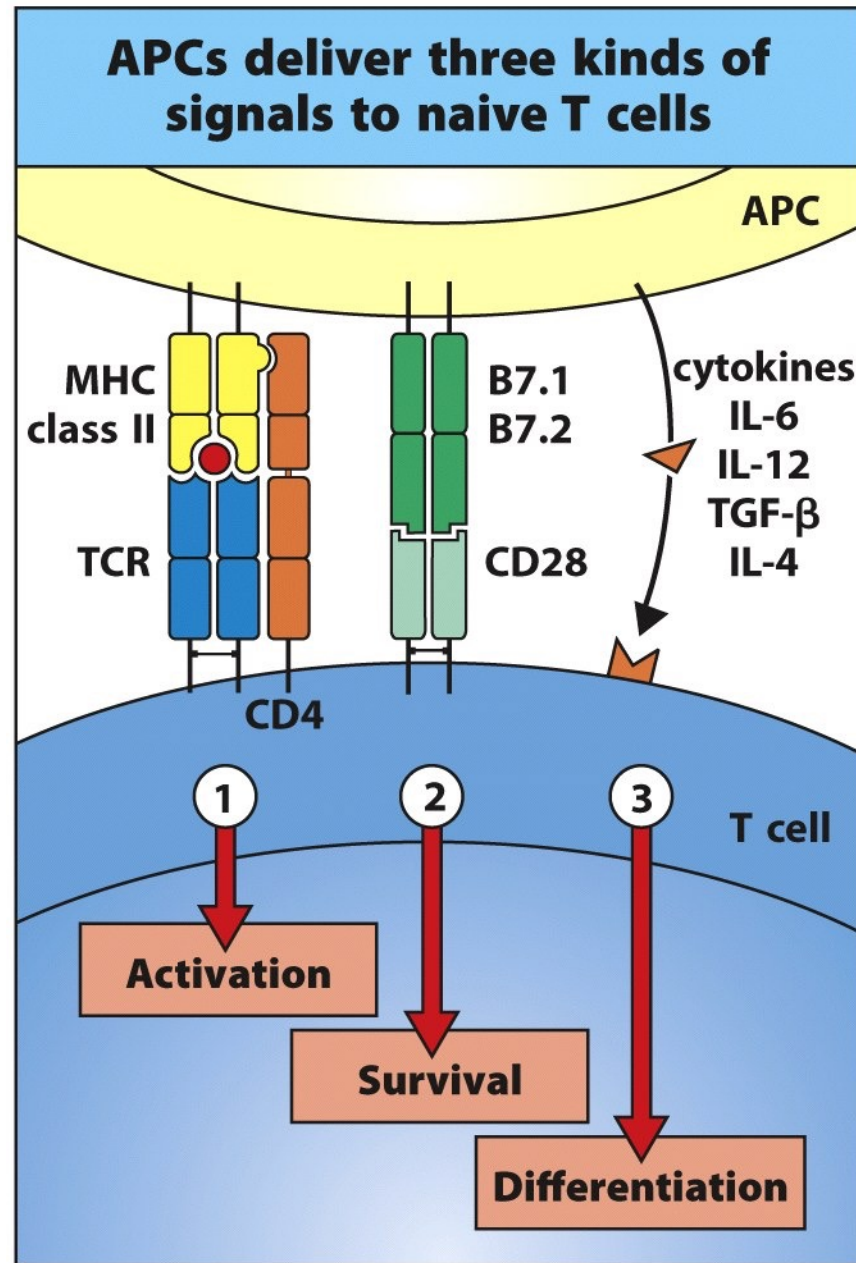
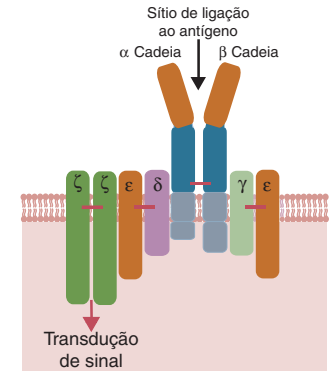
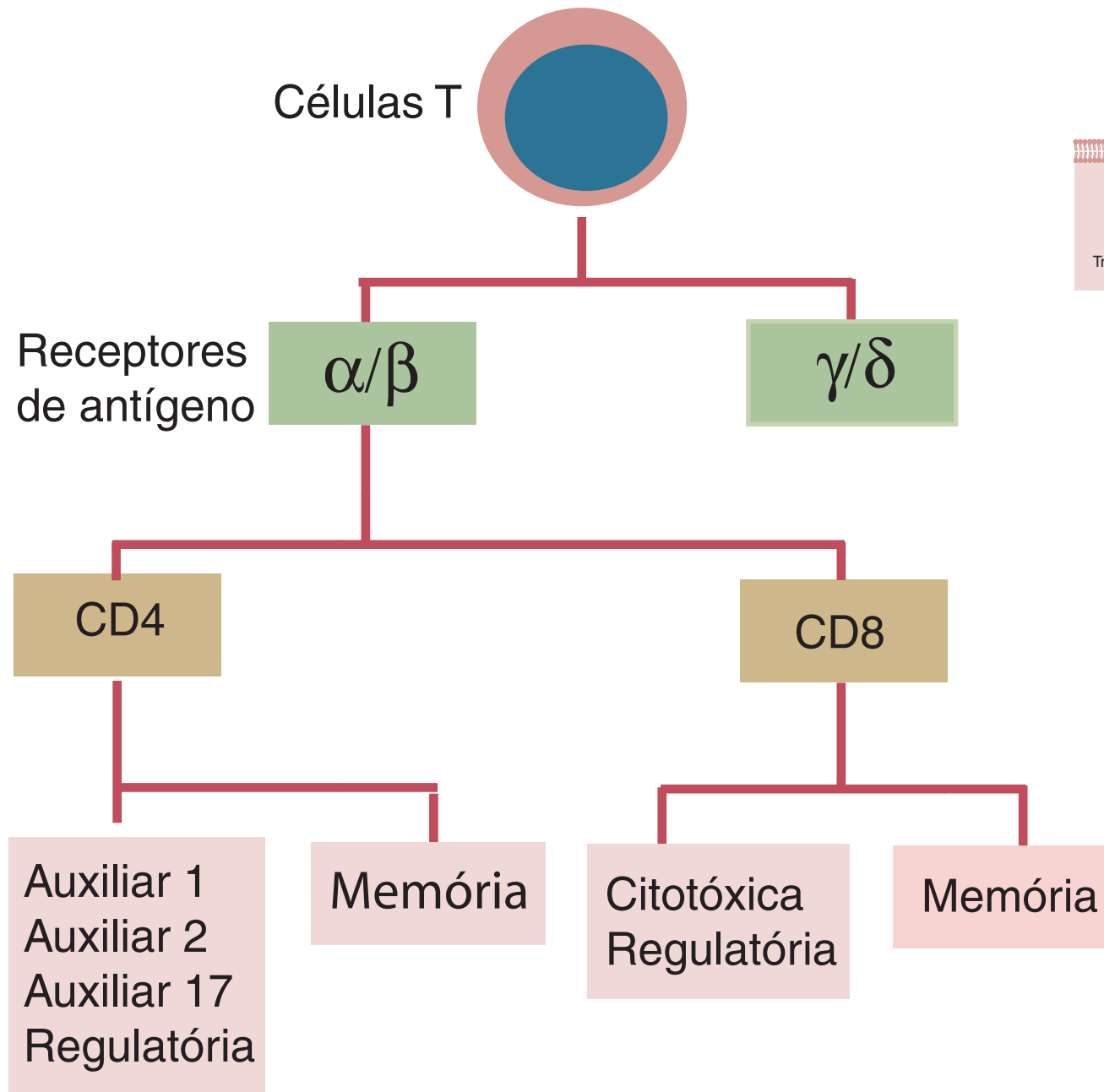
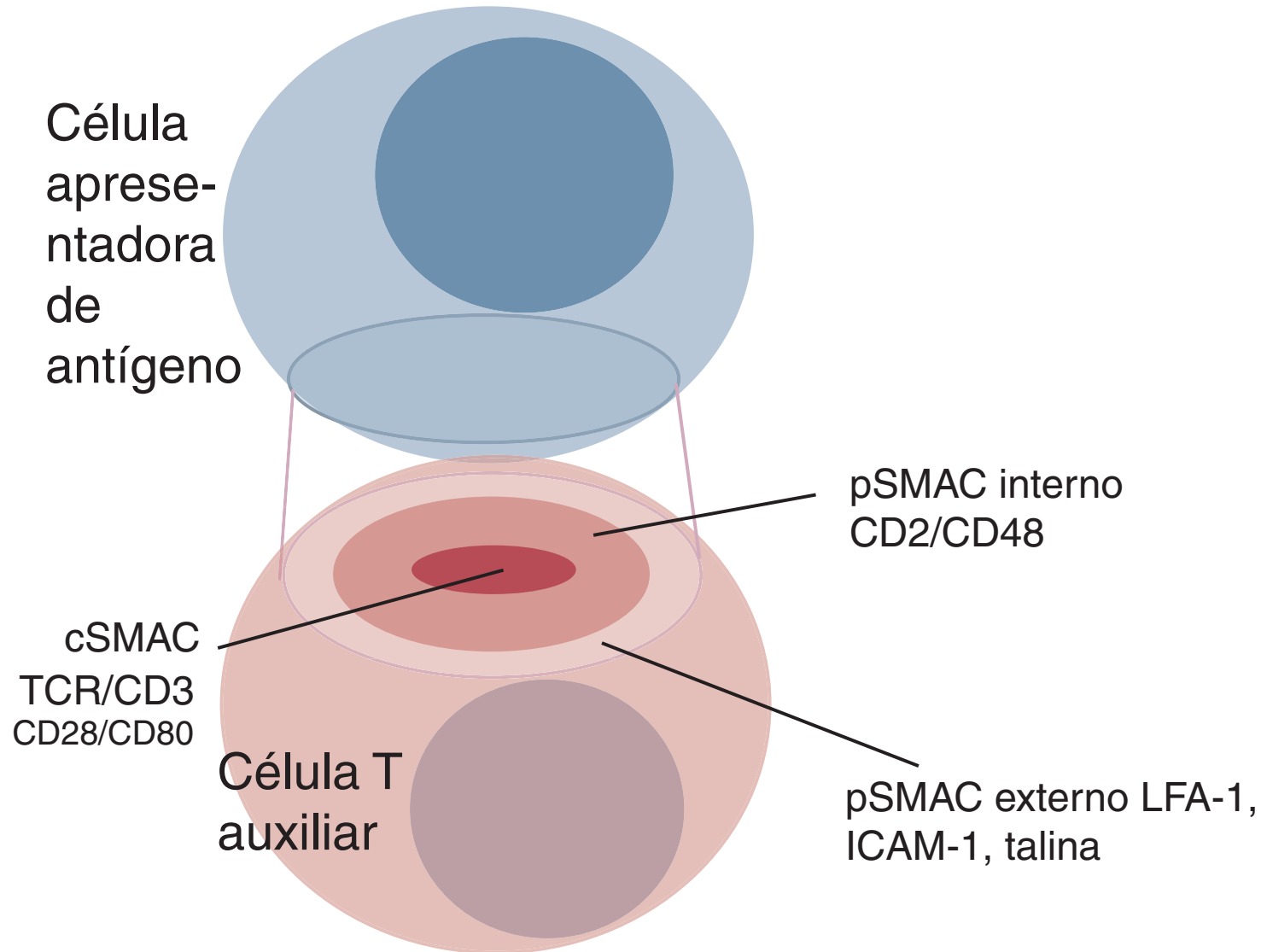


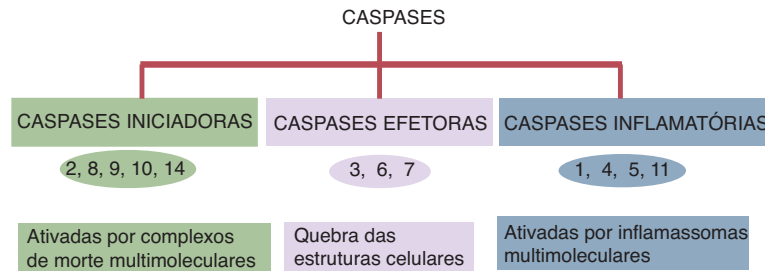
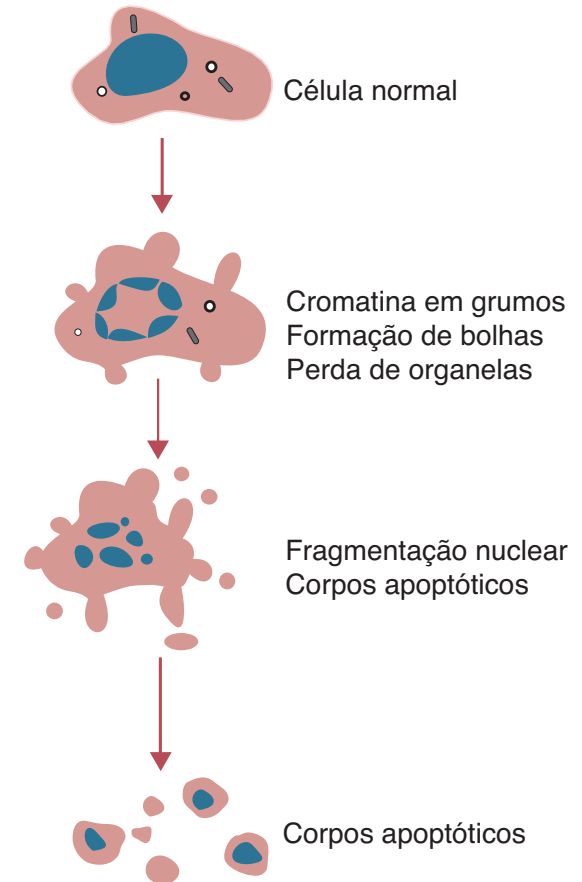
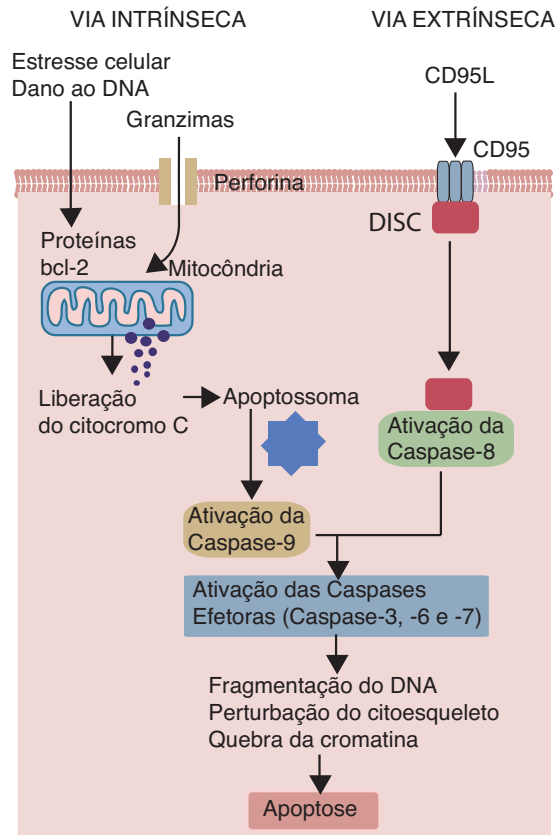
Figure 9.19 Janeway's Immunobiology, 8ed. (© Garland Science 2012)



Sinapse Imunológica

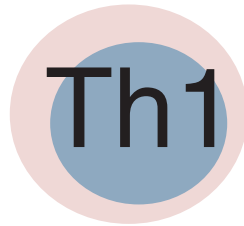


<https://youtu.be/6s0dlirk0pl>



CD80, IFN- γ e IL-12

CD86, IL-33,
TSLP e IL-1



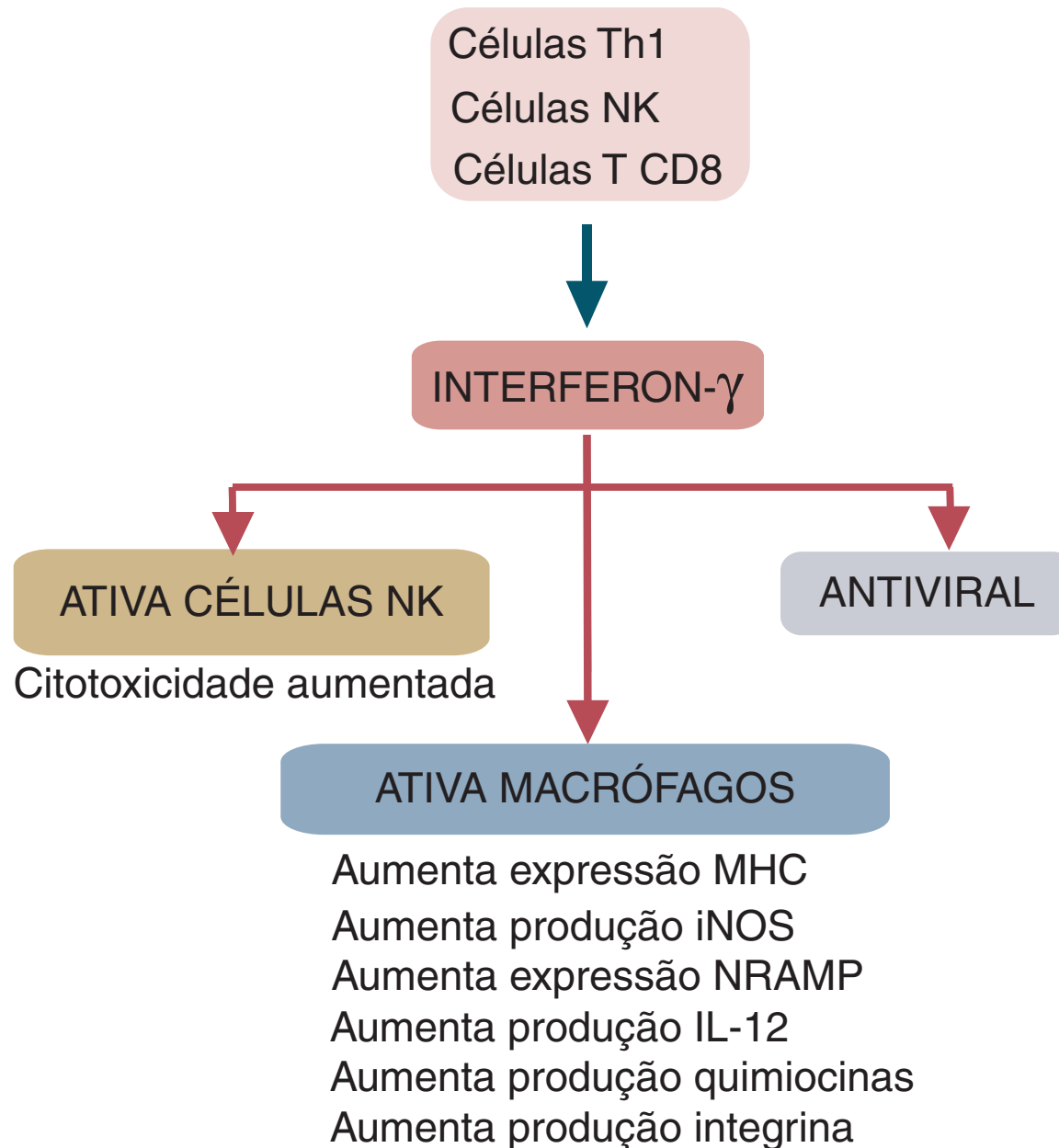
IL-2
IFN- γ
TNF- α

TNF- α
GM-CSF
IL-3

IL-4
IL-5
IL-9
IL-13

Citotoxicidade por célula T
Ativação de macrófago
Alguma produção de IgG

Alguma produção de IgG
Produção de IgA
Produção de IgE



Células T



INTERLEUCINA-2

ATIVA MACRÓFAGOS

Induz produção de TNF
Aumenta ativação por IFN-g

CÉLULAS NK

Aumenta
citotoxicidade

CONTROLA Tregs

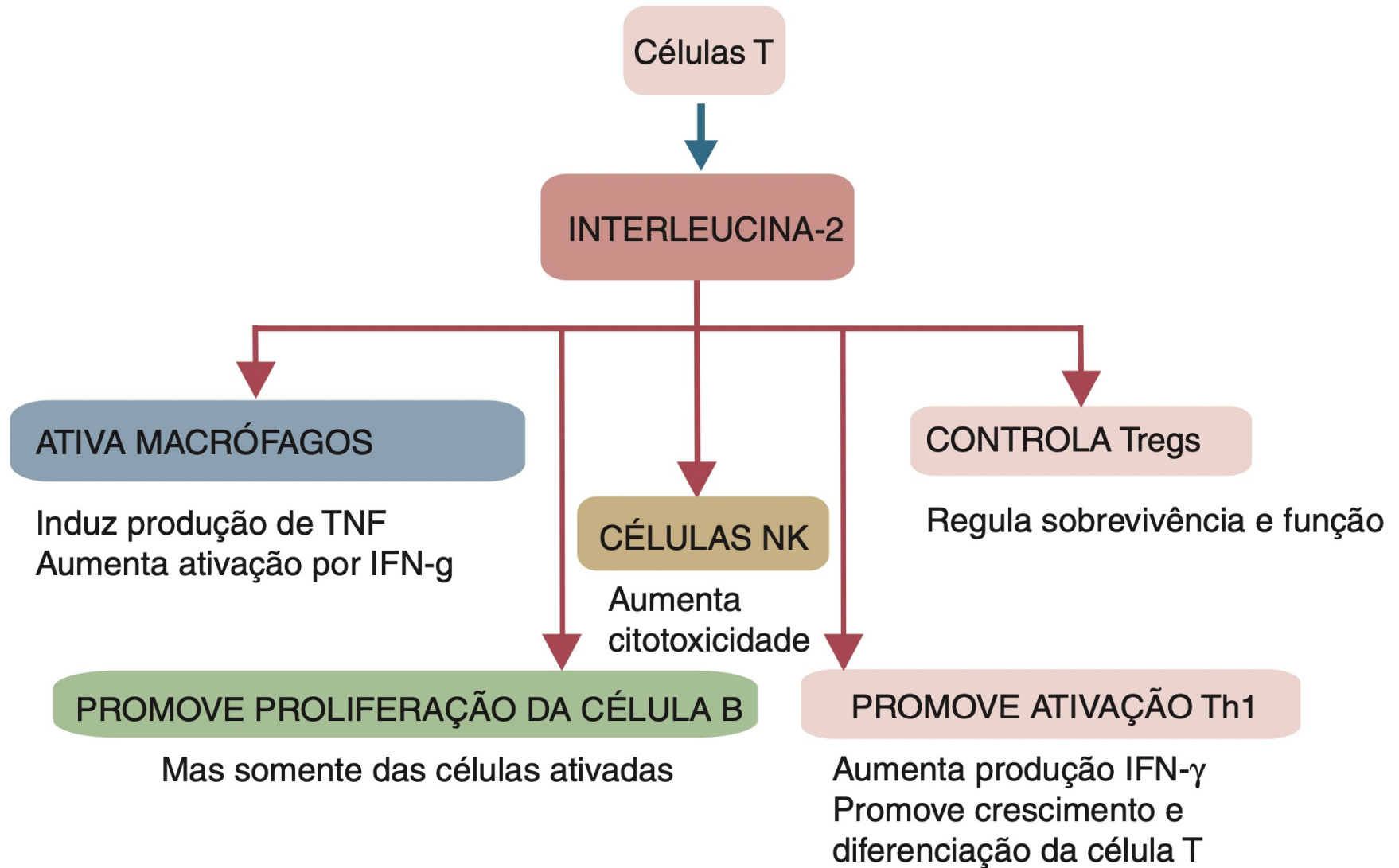
Regula sobrevivência e função

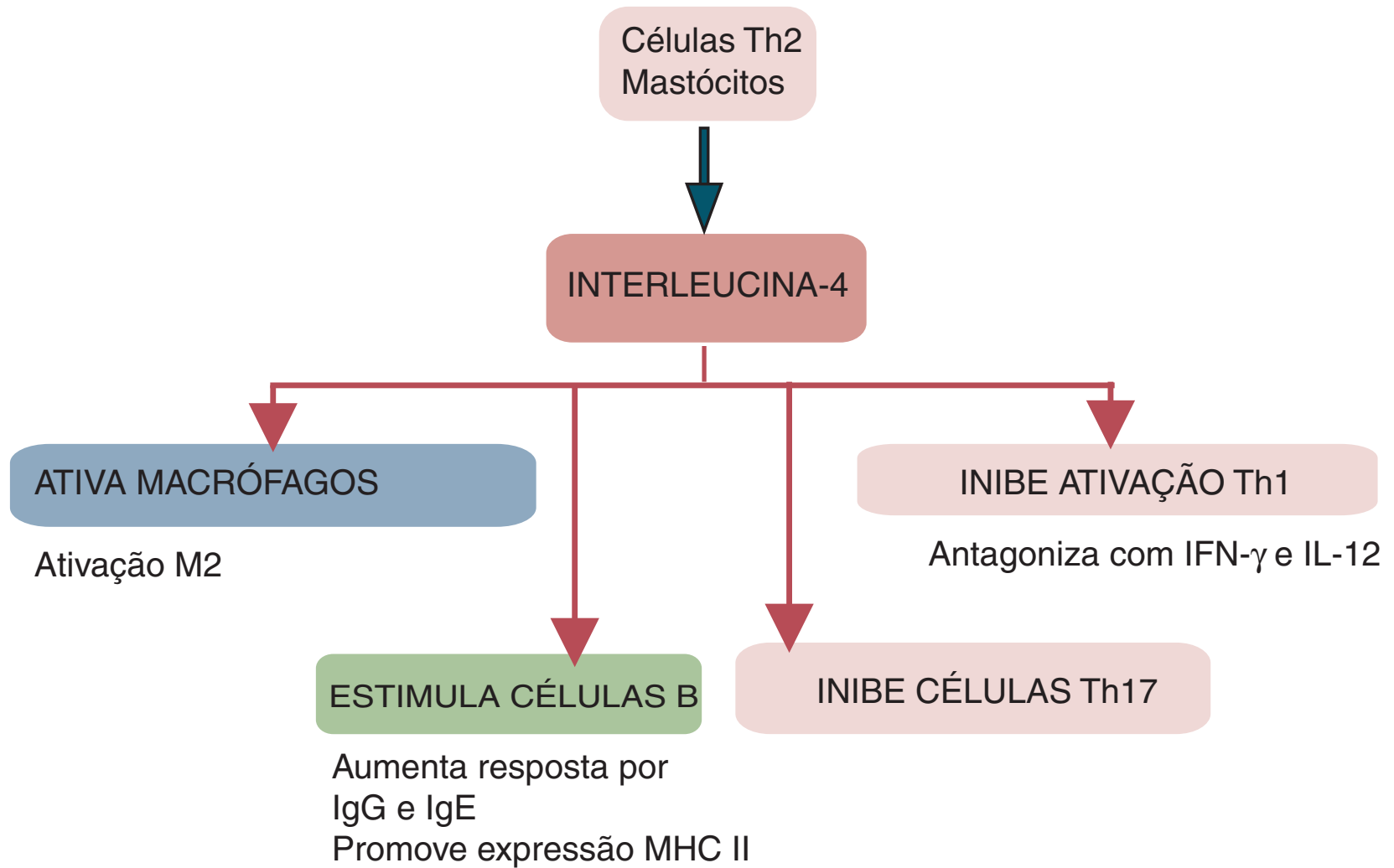
PROMOVE PROLIFERAÇÃO DA CÉLULA B

Mas somente das células ativadas

PROMOVE ATIVAÇÃO Th1

Aumenta produção IFN- γ
Promove crescimento e
diferenciação da célula T





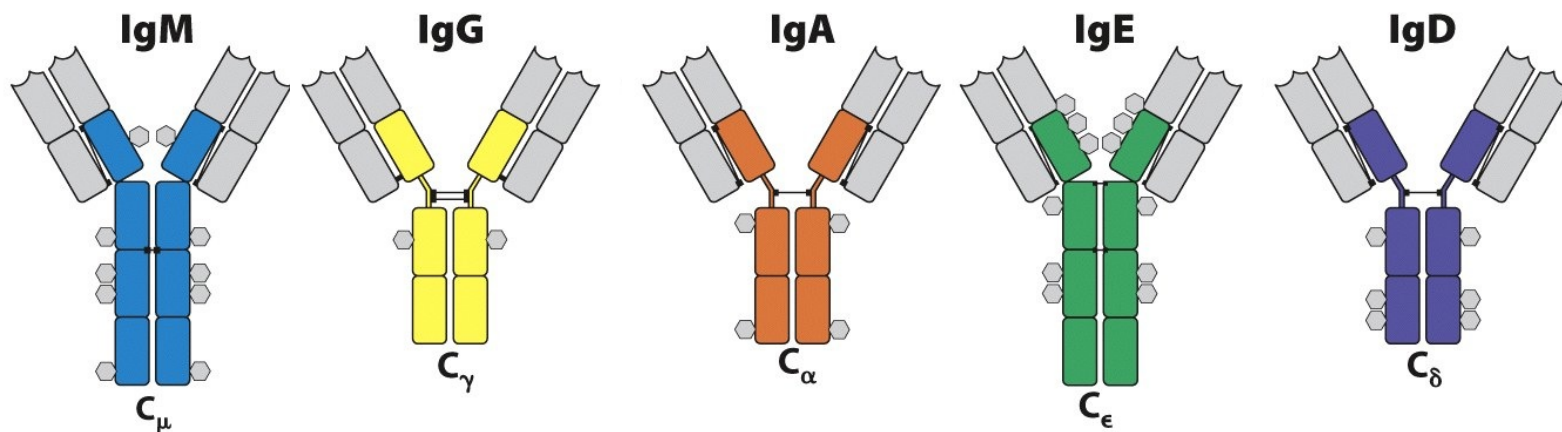


TABELA 16.1 Principais Classes de Imunoglobulinas nos Mamíferos Domésticos

Propriedade	CLASSE DA IMUNOGLOBULINA				
	IgM	IgG	IgA	IgE	IgD
Peso molecular	900.000	180.000	360.000	200.000	180.000
Subunidades	5	1	2	1	1
Cadeia pesada	μ	γ	α	ϵ	δ
Principalmente sintetizada em:	Baço e linfonodos	Baço e linfonodos	Tratos respiratório e intestinal	Tratos respiratório e intestinal	Baço e linfonodos

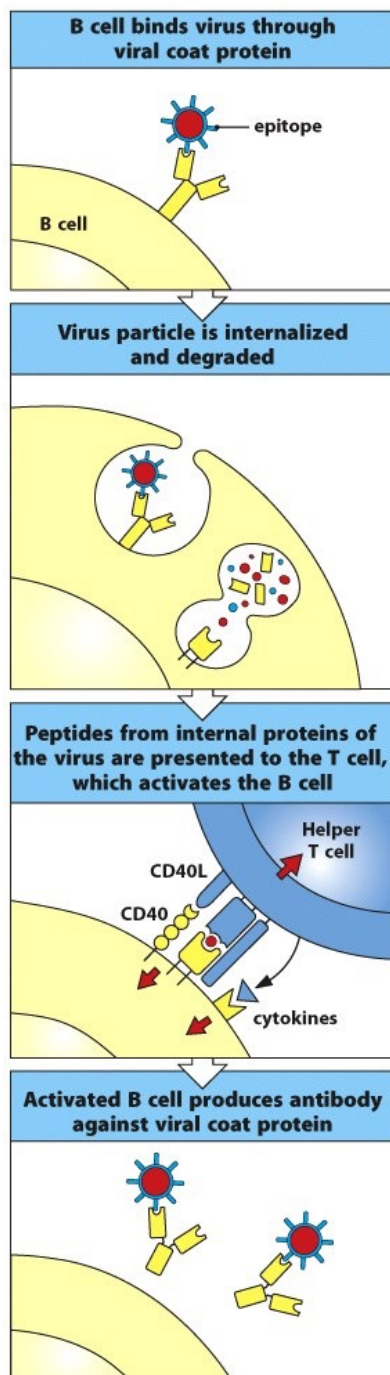


Figure 10.4 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

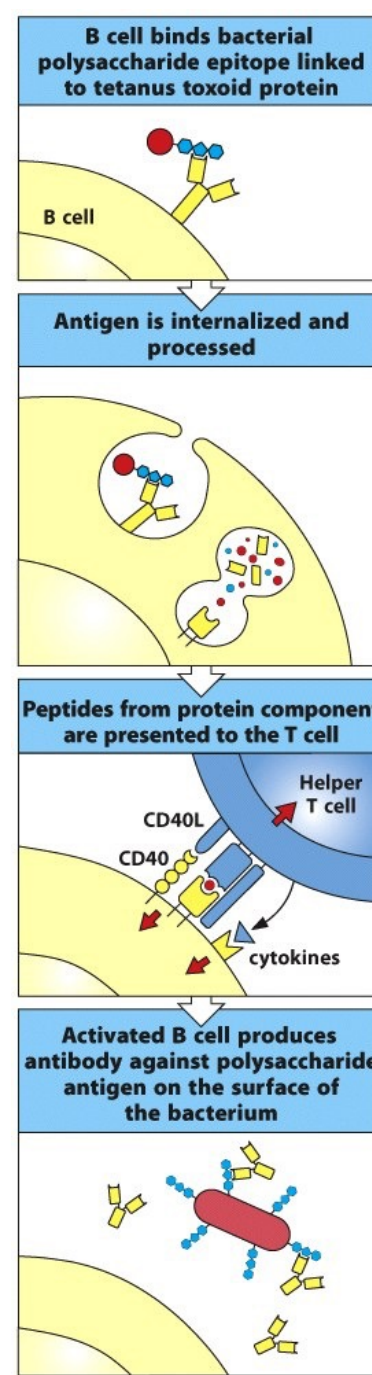


Figure 10.5 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

Mecanismos de Citotoxicidade Mediada por Células

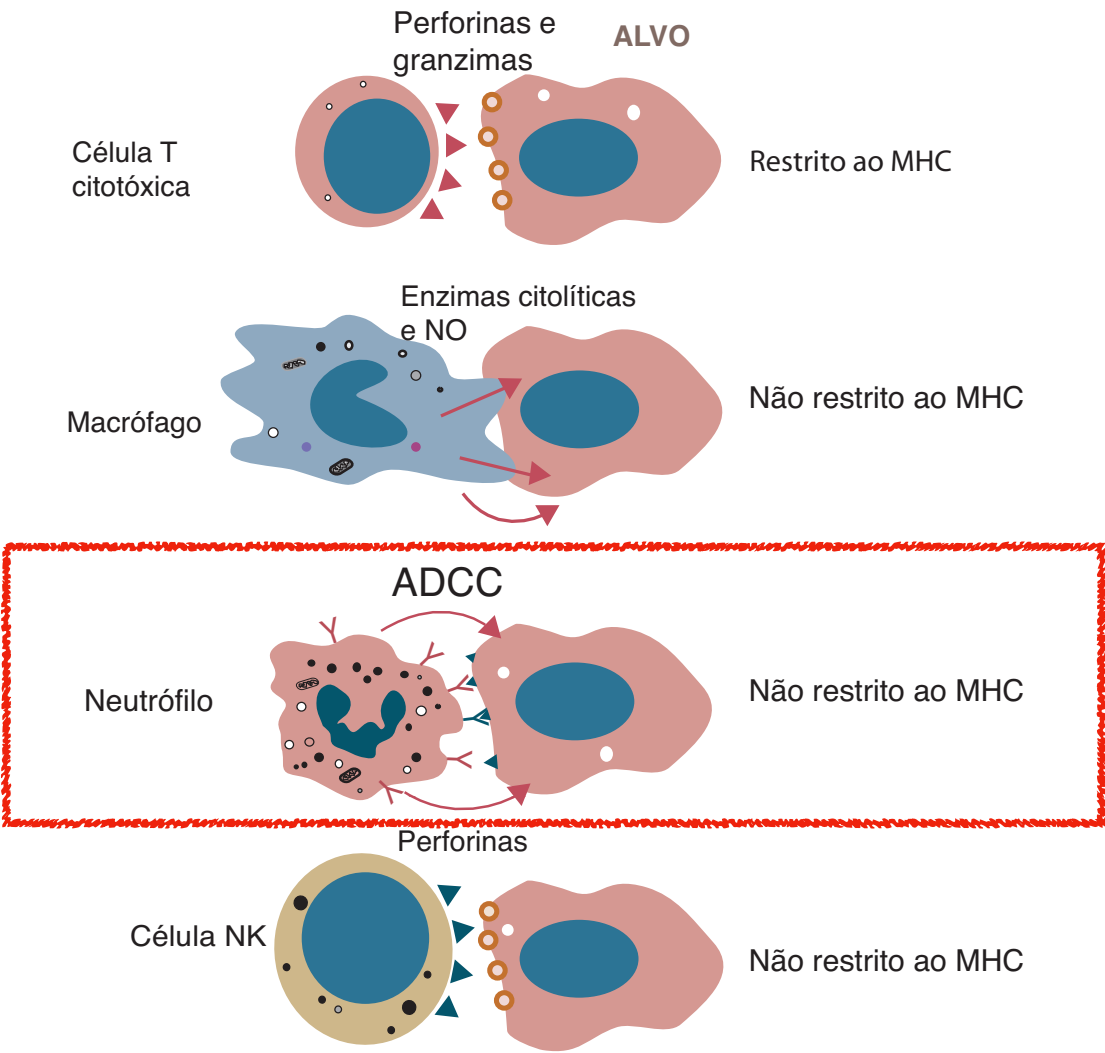


TABELA 18.1 Comparação dos Três Mecanismos de Citotoxicidade Mediada por Células				
Células citotóxicas	Tempo	Mecanismo	Restrição ao MHC	Antígeno-específica
Células NK	24 hr	Citotoxicidade mediada por NK	Não	Não
Linfócitos normais ou macrófagos com FcγRIII com anticorpo específico	6 hr	Atividade ADCC	Não	Sim
Células T primadas	10 min	Citotoxicidade mediada por célula T	Sim	Sim

T-independente - somente IgM e IgG, sem memória

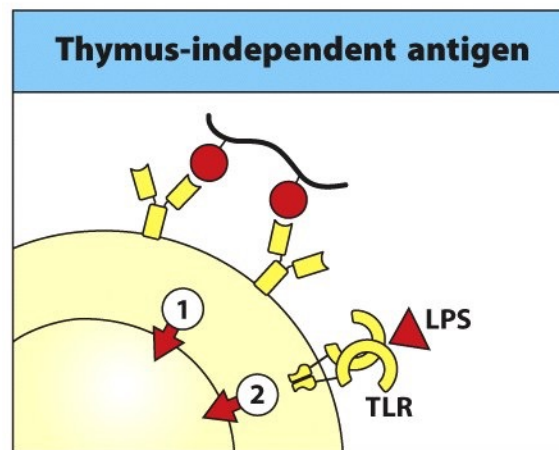


Figure 10.2 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

**TI-2 antigens alone can signal
B cells to produce IgM antibody**

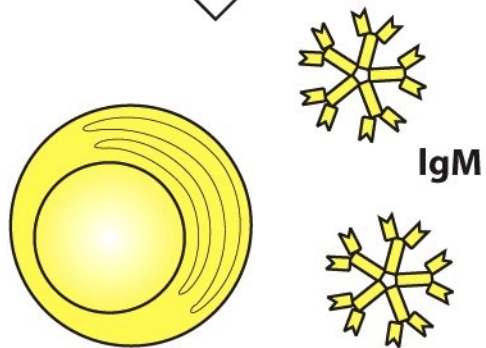
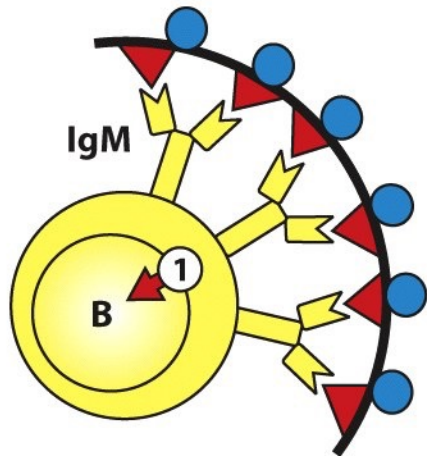
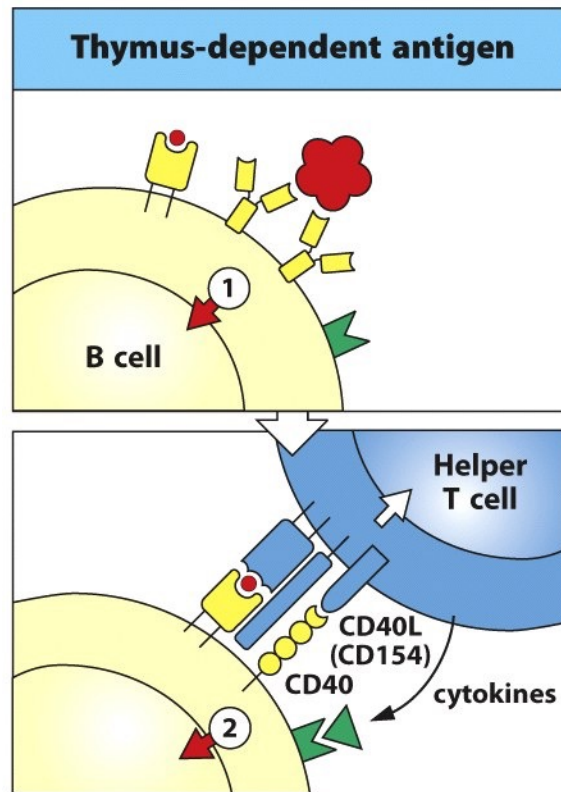
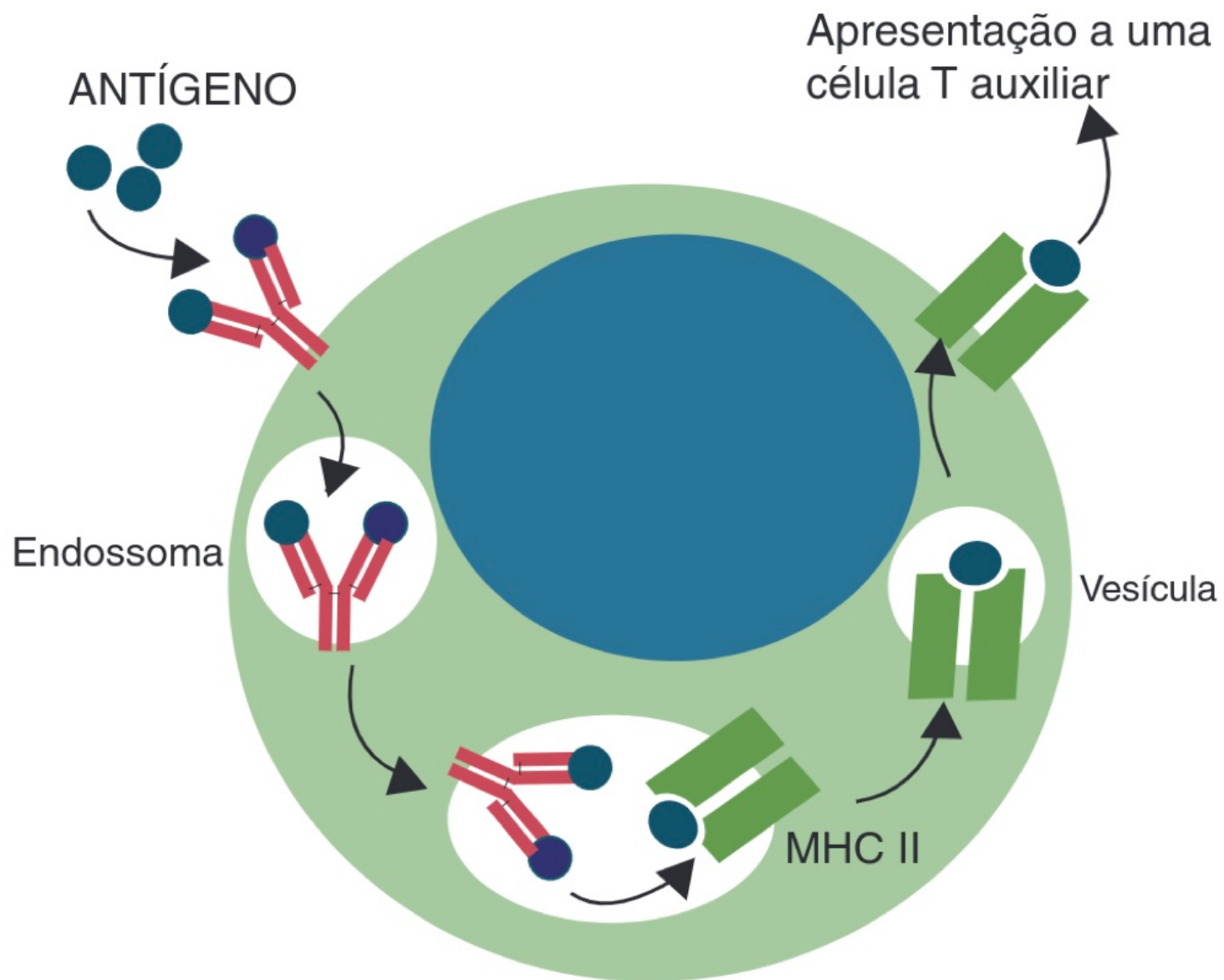
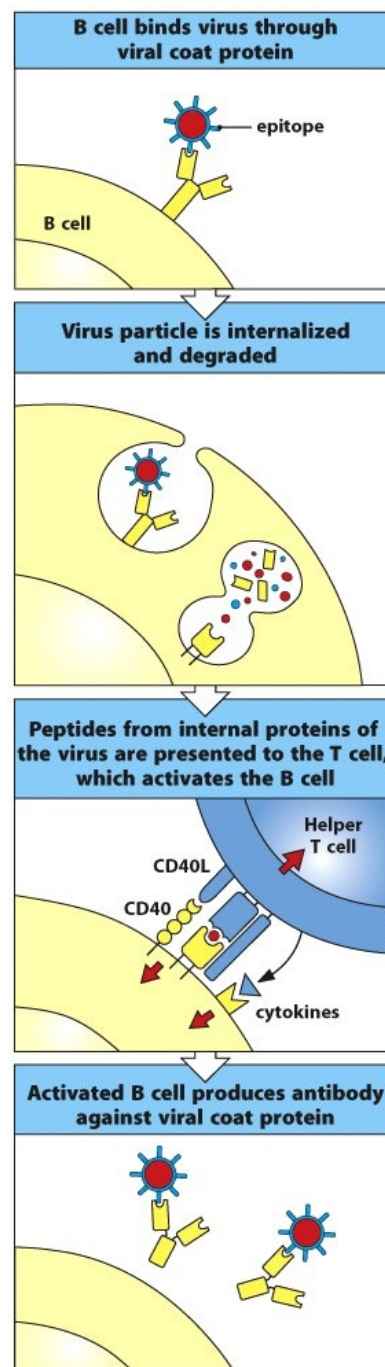


Figure 10.19 Janeway's Immunobiology, 8ed. (© Garland Science 2012)



T-dependente - troca de isotipo, maturação de afinidade e memória

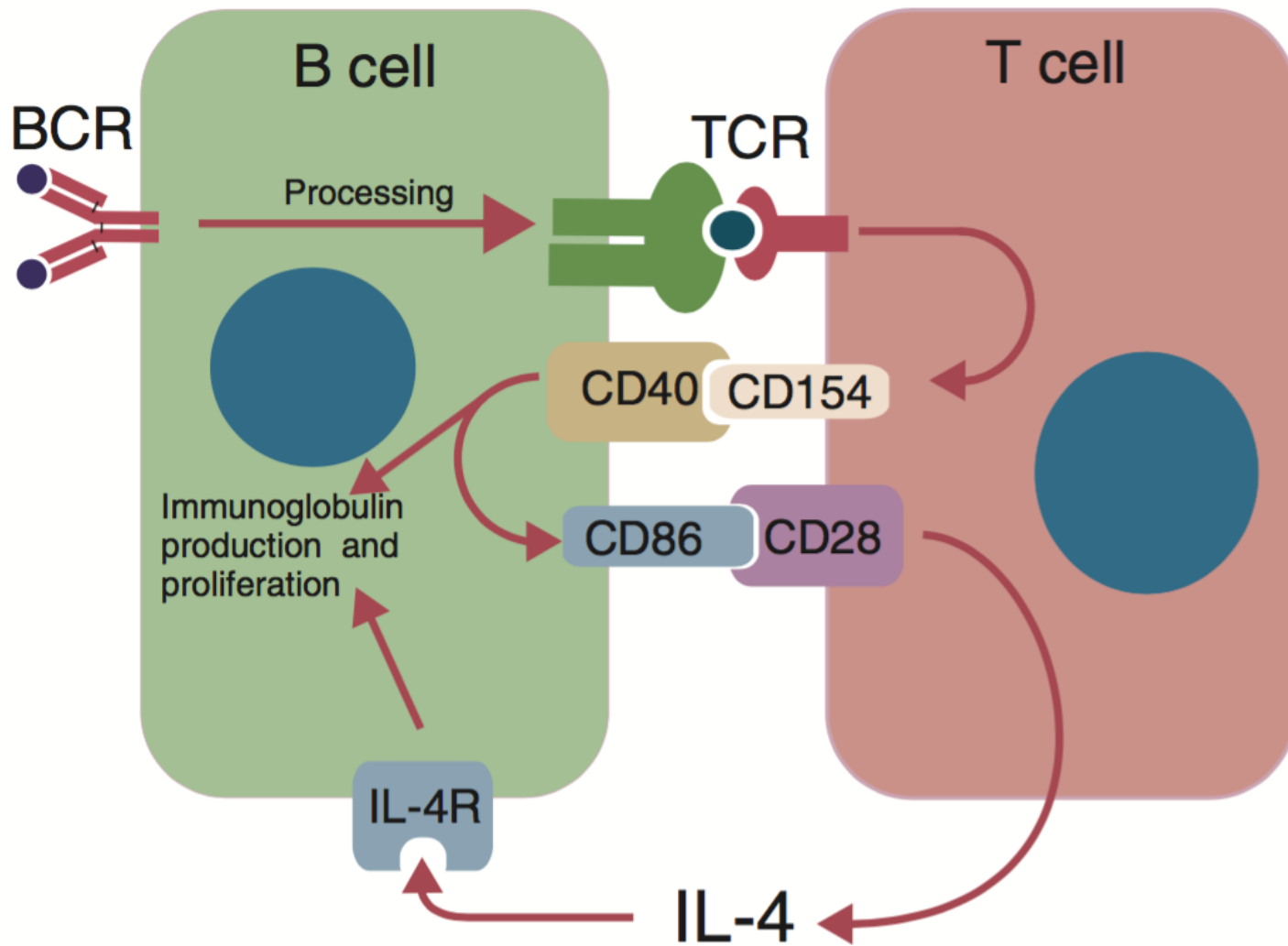




Resposta a Ag T-dependentes
ocorre em 2 etapas:

- 1- BCR $\rightarrow$ MHC-II
- 2- MHC-II $\rightarrow$ TCD4+

Figure 10.4 Janeway's Immunobiology, 8ed. (© Garland Science 2012)



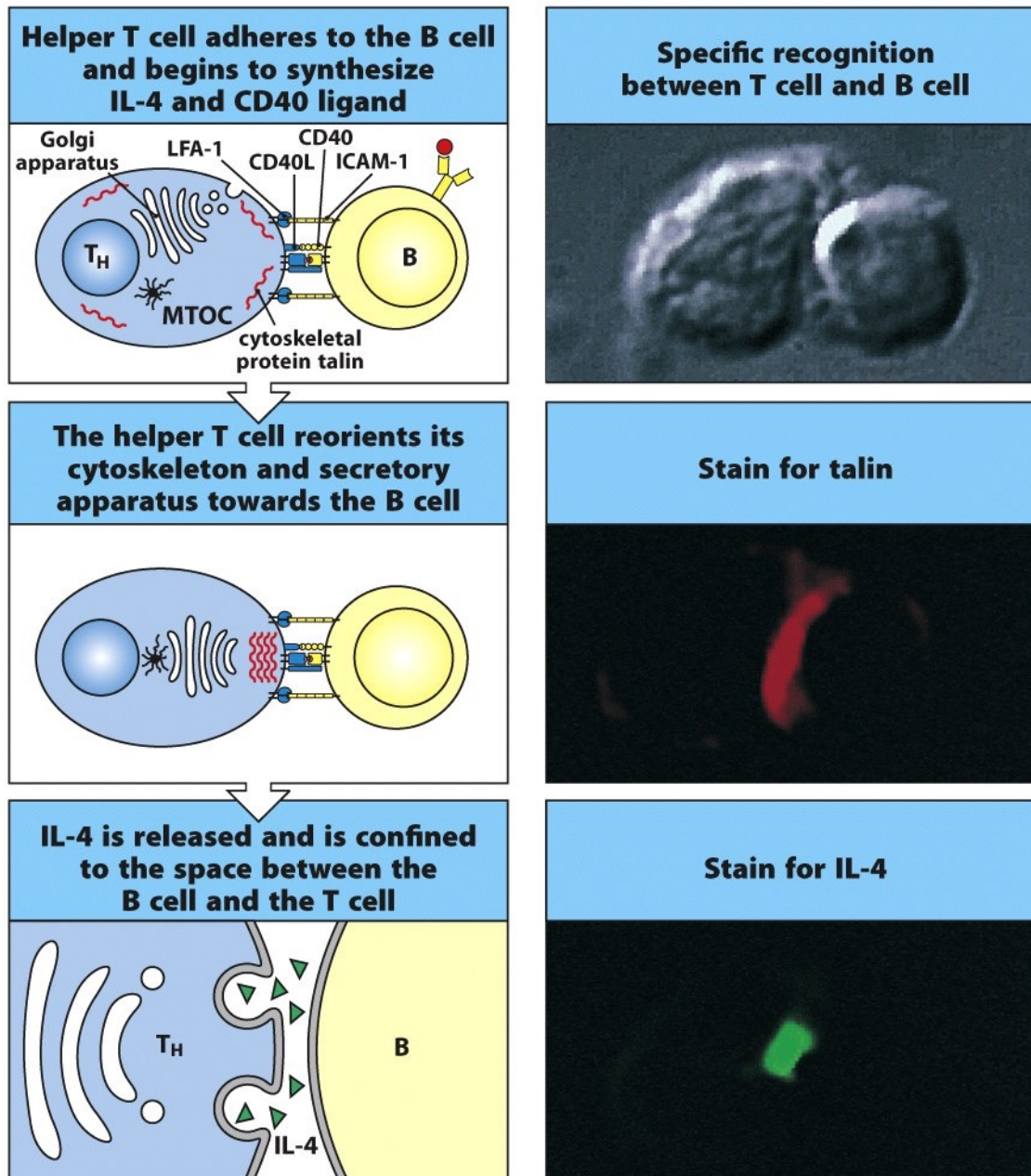


Figure 10.6 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

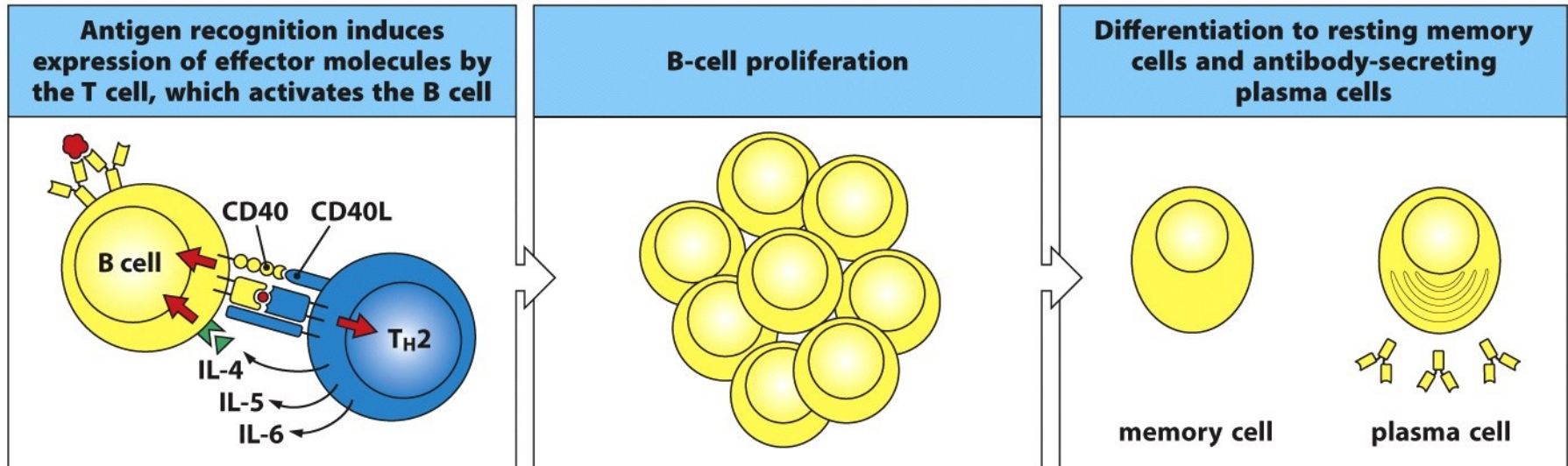
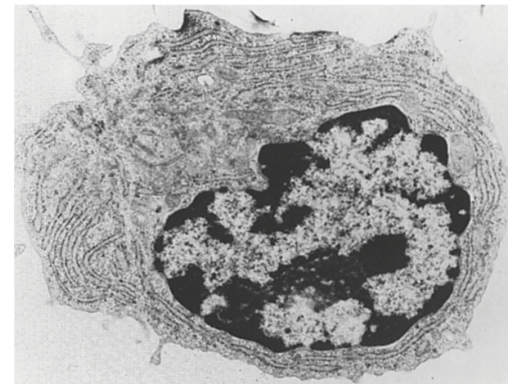


Figure 10.3 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

T-dependente - troca de isotipo, maturação de afinidade e memória

