

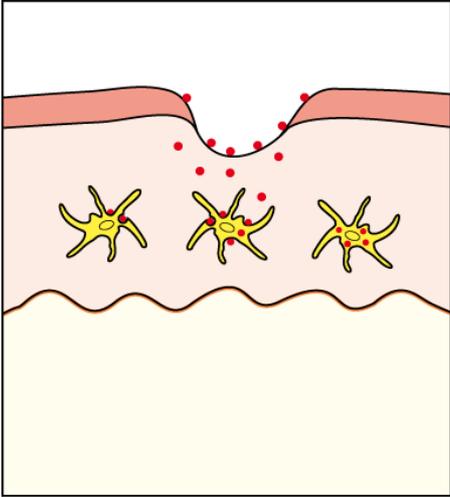


Receptores de Reconhecimento do Sistema Imune e Processamento e Apresentação de Antígenos

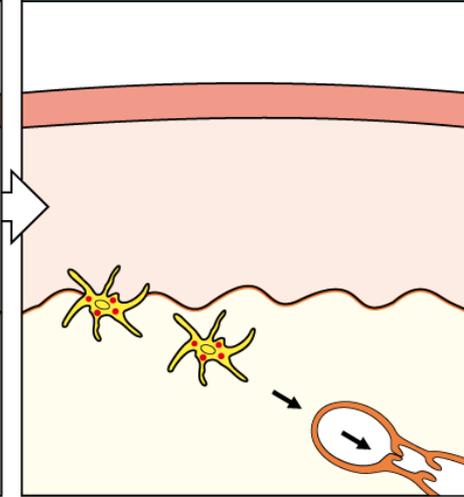
Prof Vanessa Carregaro
Departamento de Bioquímica e Imunologia
FMRP-USP

Ribeirão Preto
30 de Março, 2023

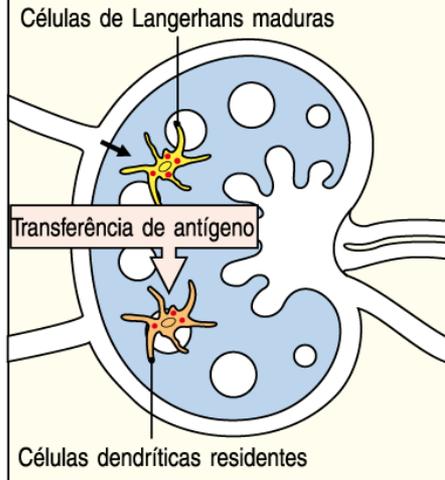
Antígenos são capturados na pele pelas células de Langerhans



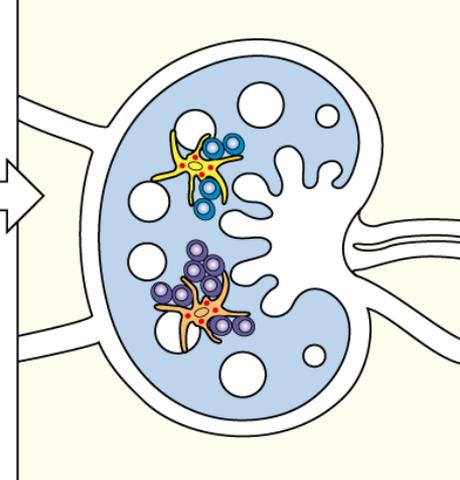
As células de Langerhans deixam a pele e entram no sistema linfático



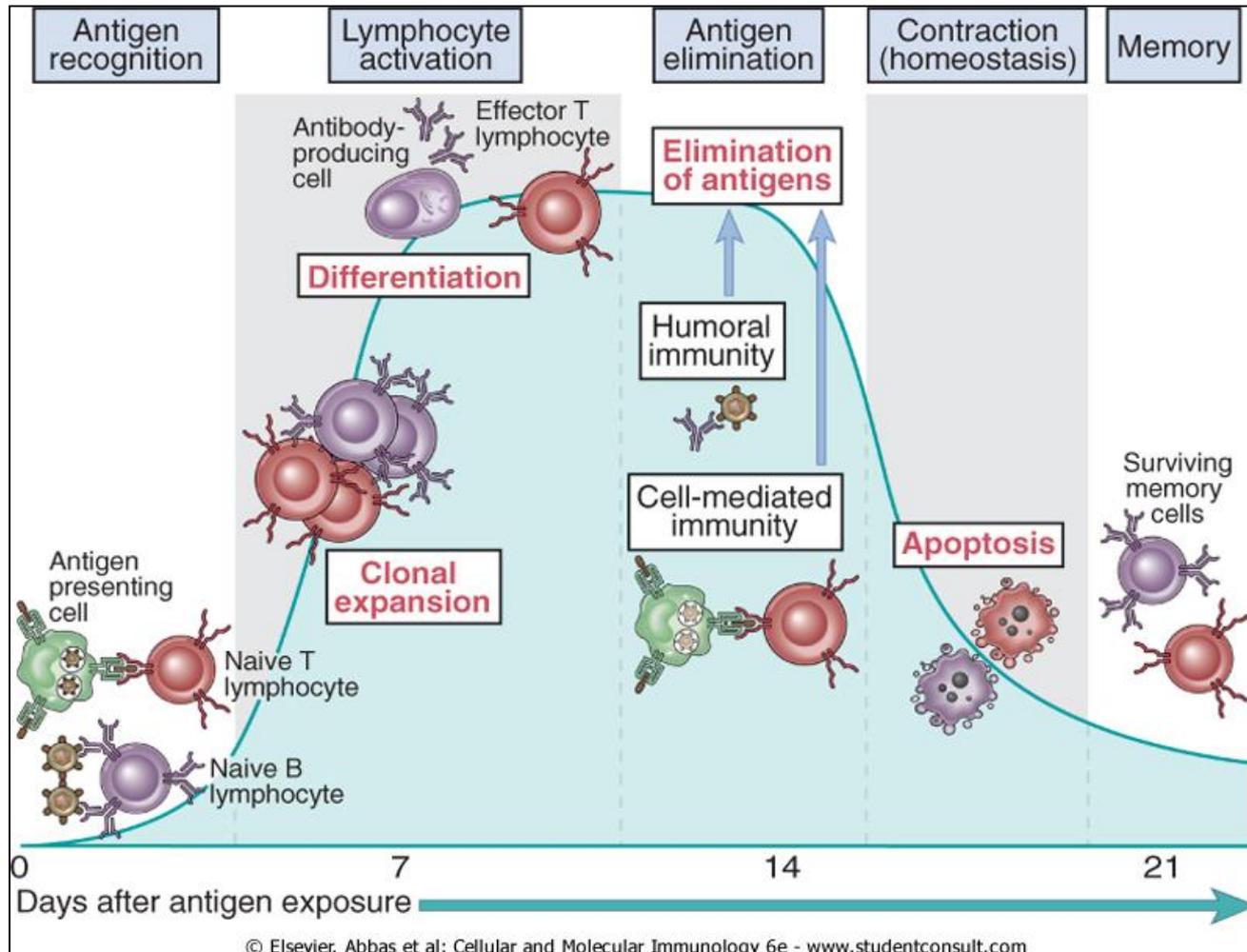
As células dendríticas maduras dos tecidos infectados entram nos linfonodos e podem transferir alguns antígenos para as células dendríticas residentes



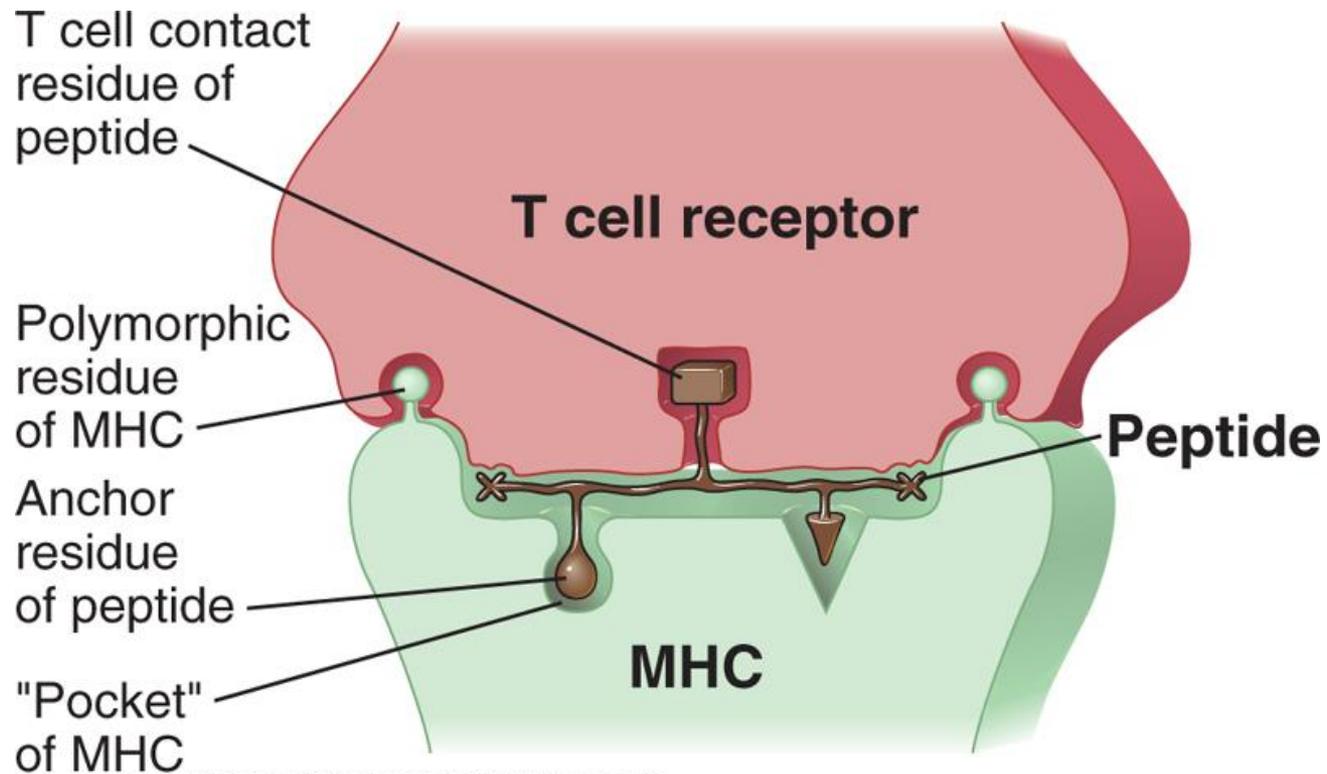
As células dendríticas B7 positivas estimulam as células T virgens



Fases da Resposta Imune Adaptativa

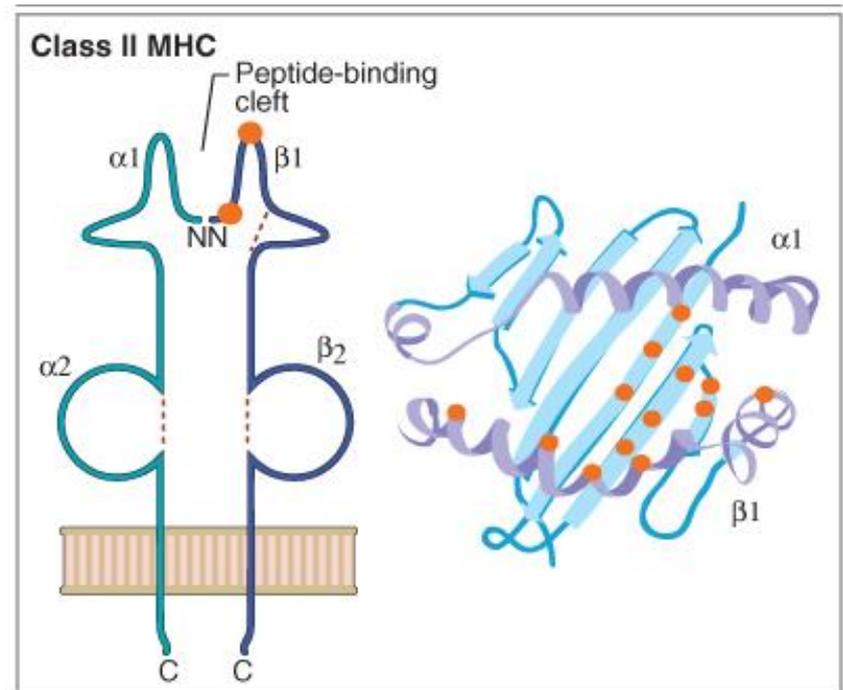
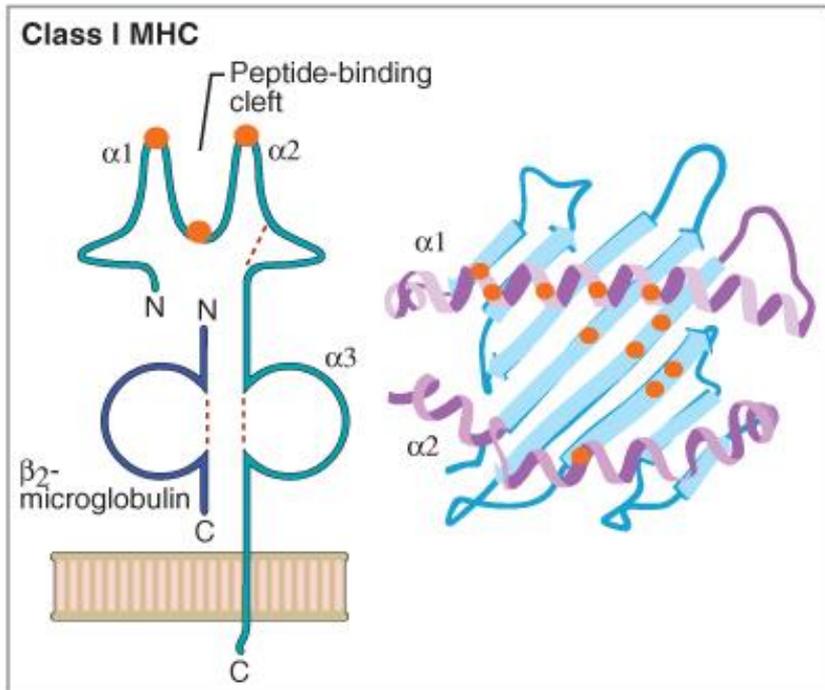


Reconhecimento

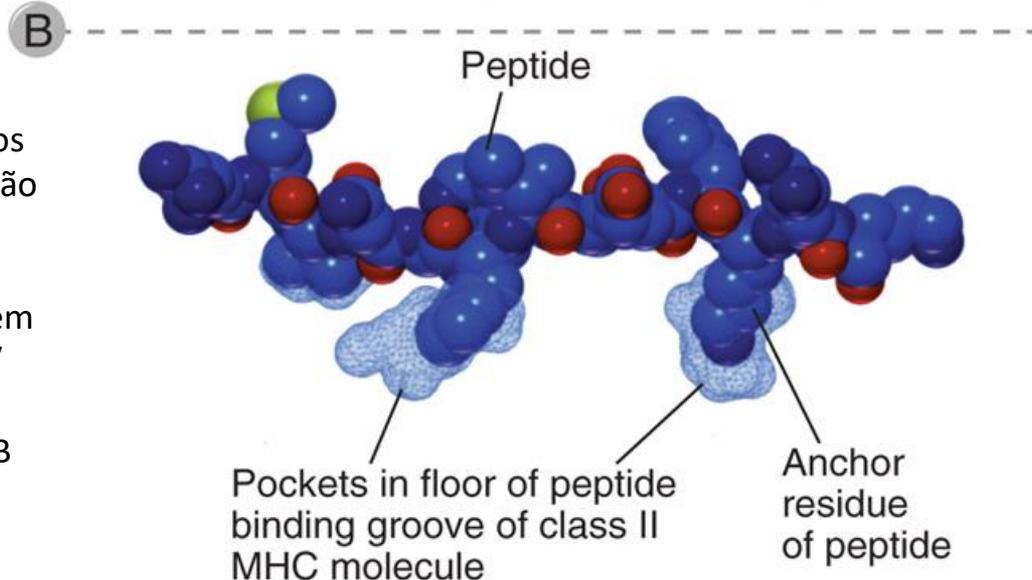
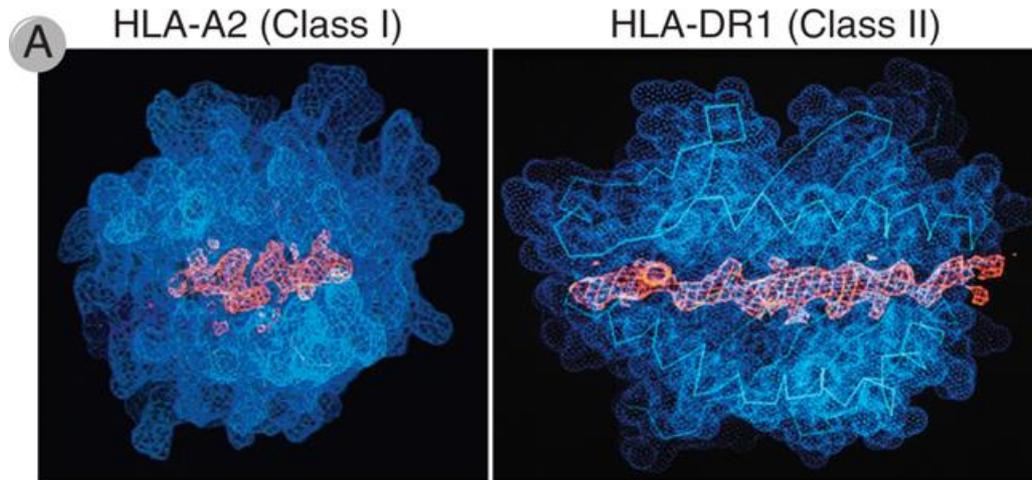


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Estrutura da Molécula de MHC-I e MHC-II



Ligação do peptídeo às moléculas do MHC



MHC-I= fenda- peptideos de 8-11aa em conformação flexível e estendida / células nucleadas

MHCII= fenda-10-30 aa em conformação flexível / Células dendríticas, macrófagos e linfócito B

Receptores de Antígenos de Células T (TCR)

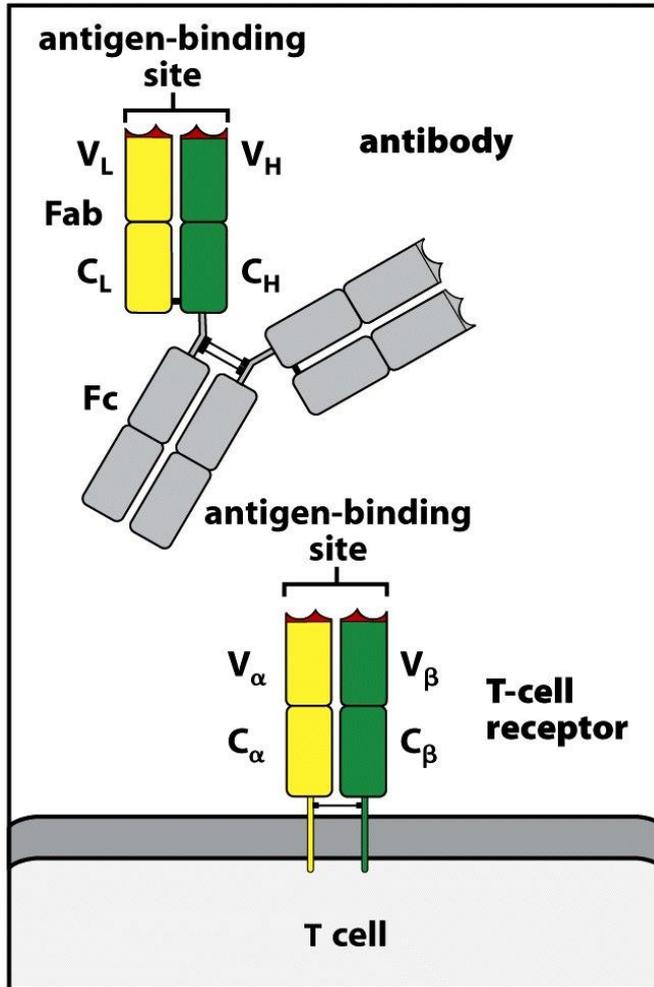


Figure 3-11 Immunobiology, 7ed. (© Garland Science 2008)

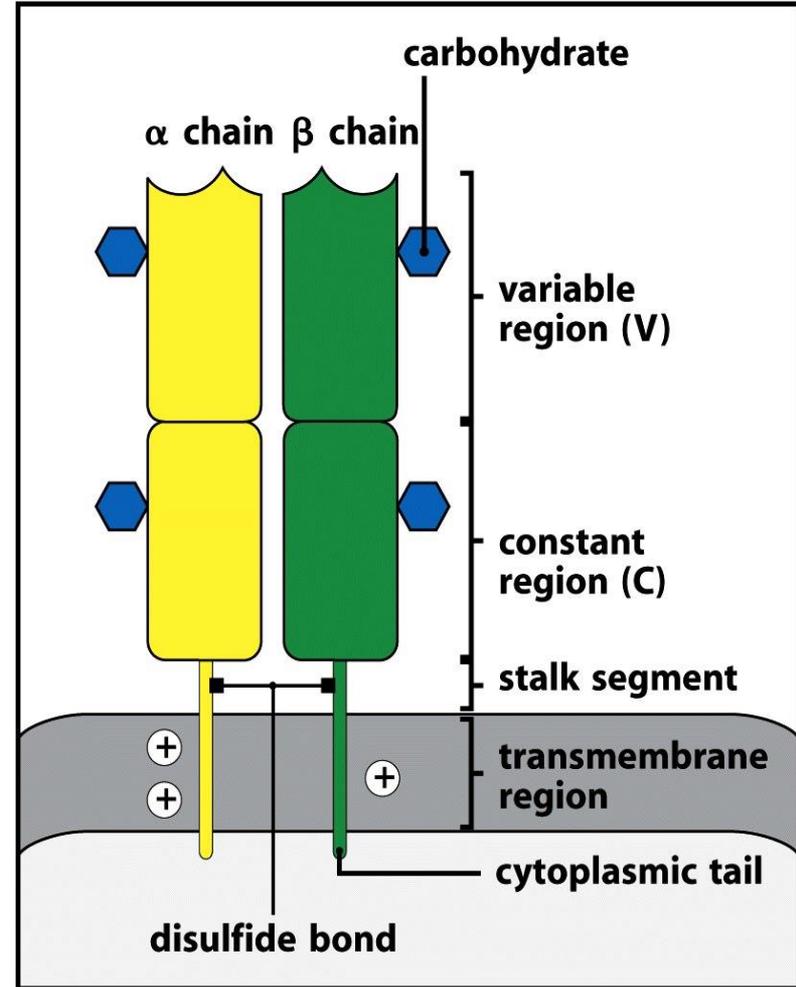
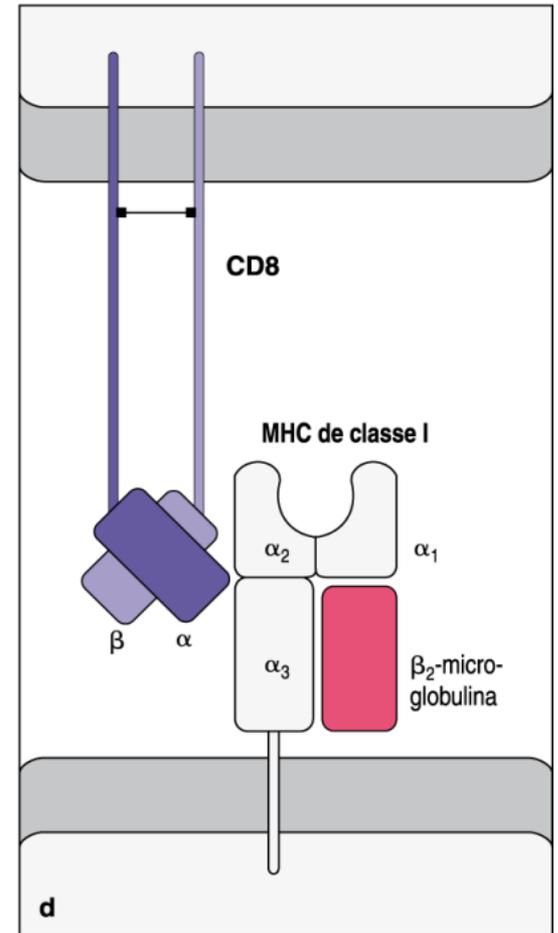
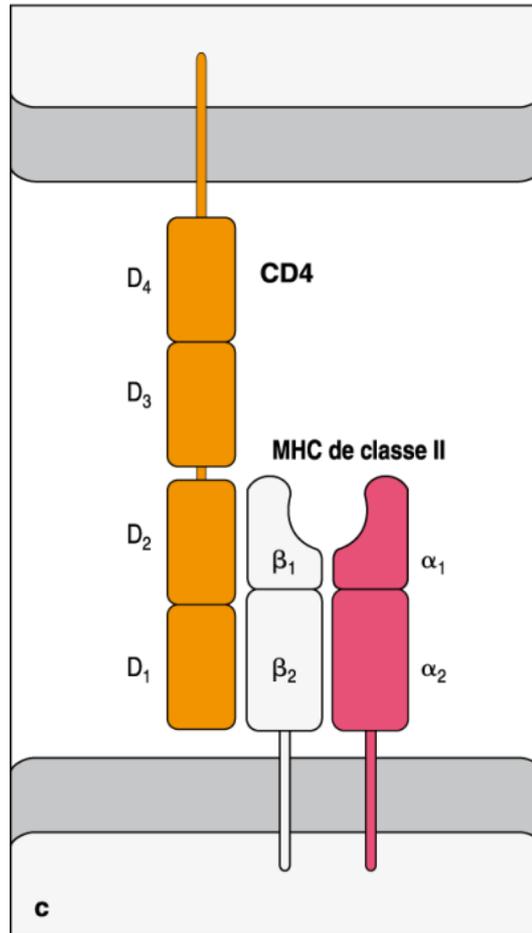
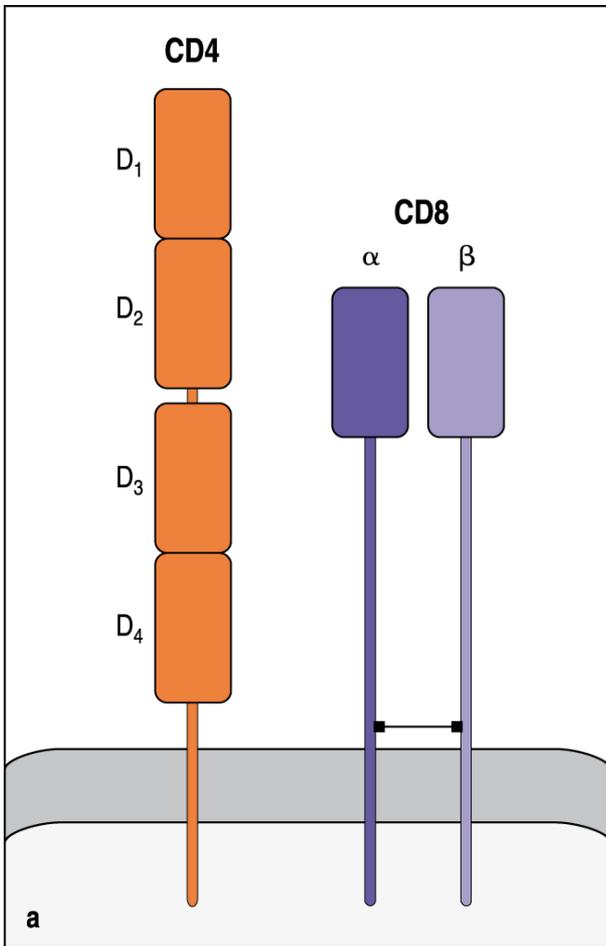
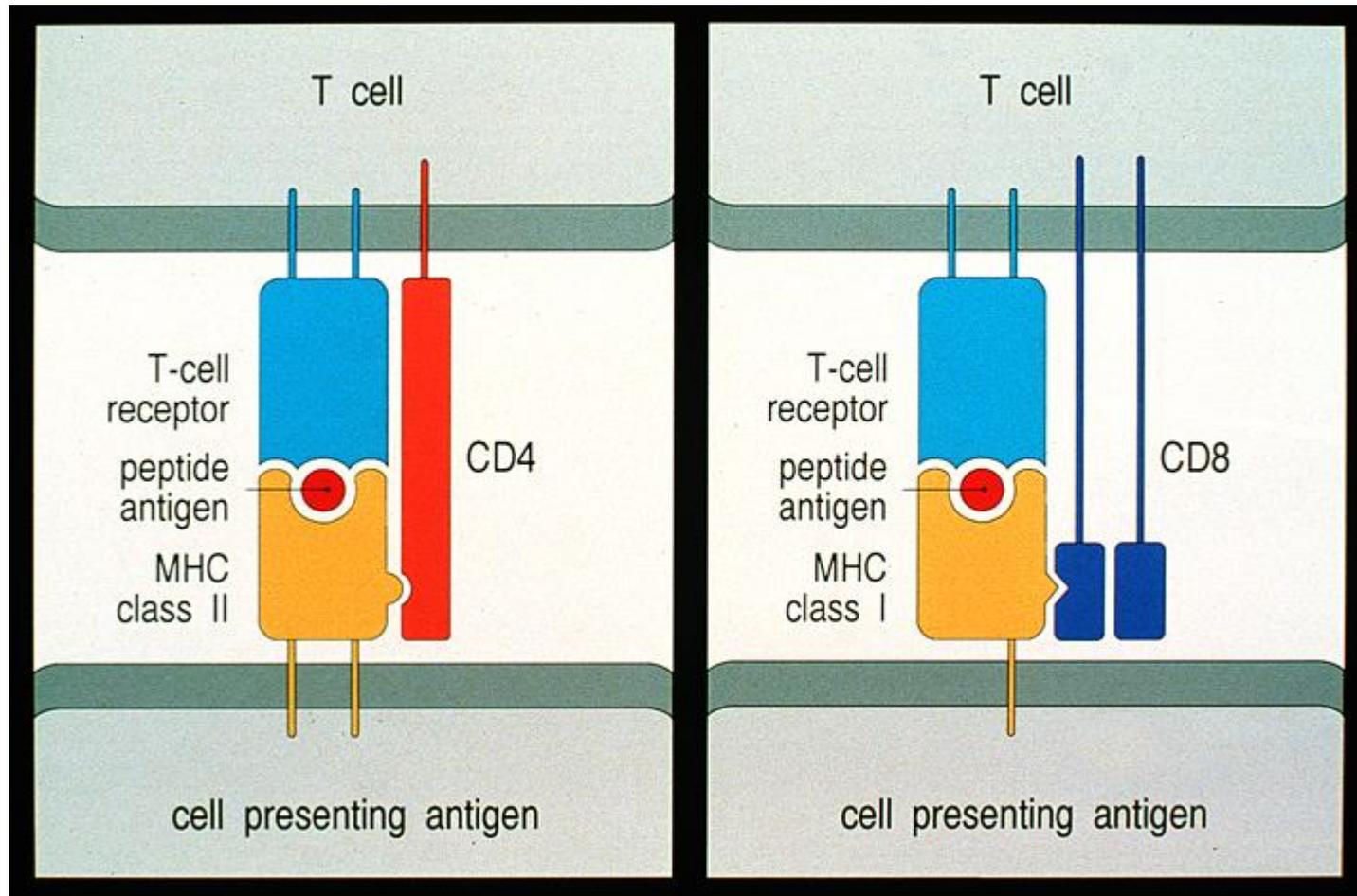


Figure 3-12 Immunobiology, 7ed. (© Garland Science 2008)

Estrutura de correceptores CD4 e CD8

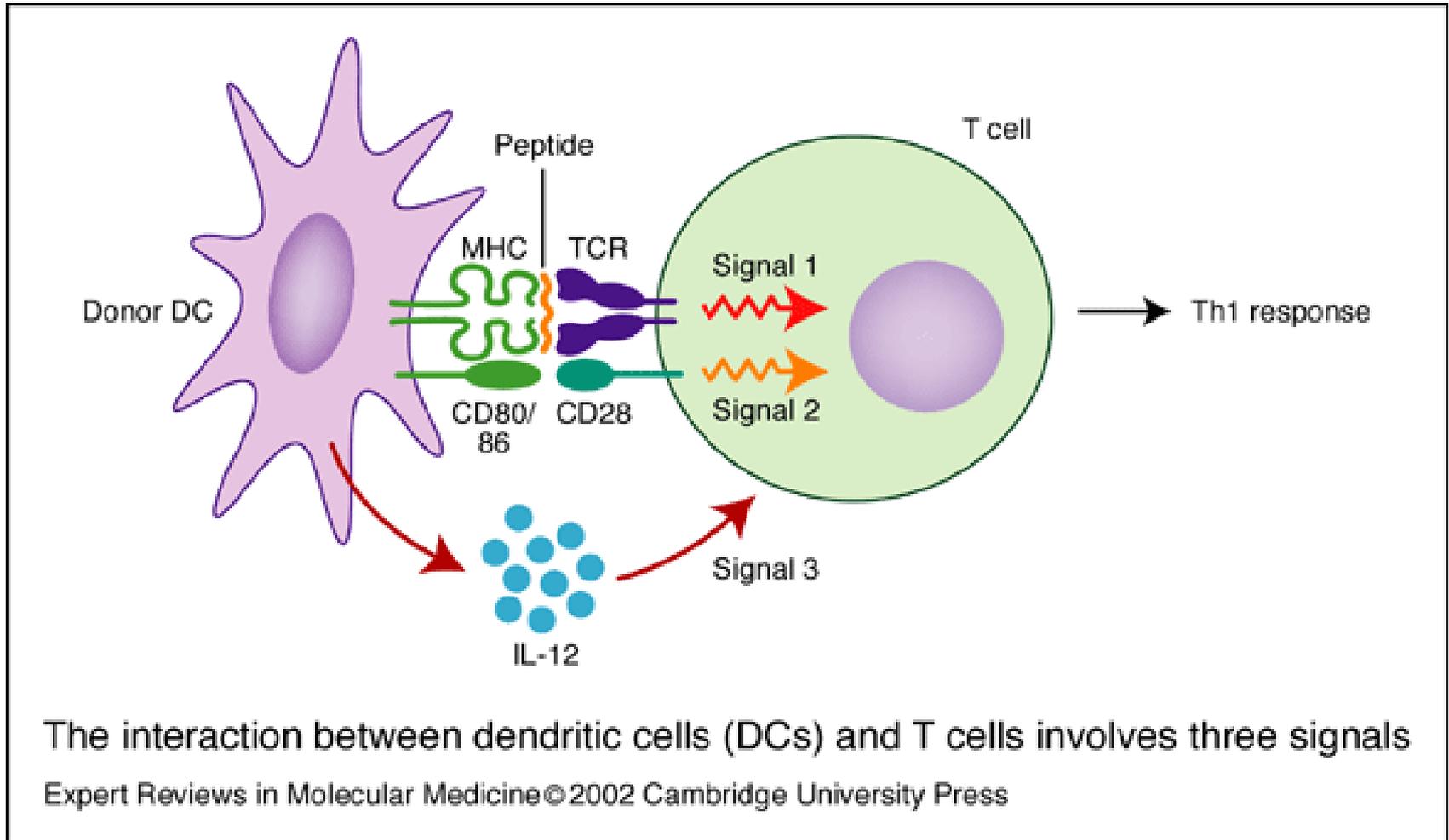


Linfócitos T: TCD4 e TCD8



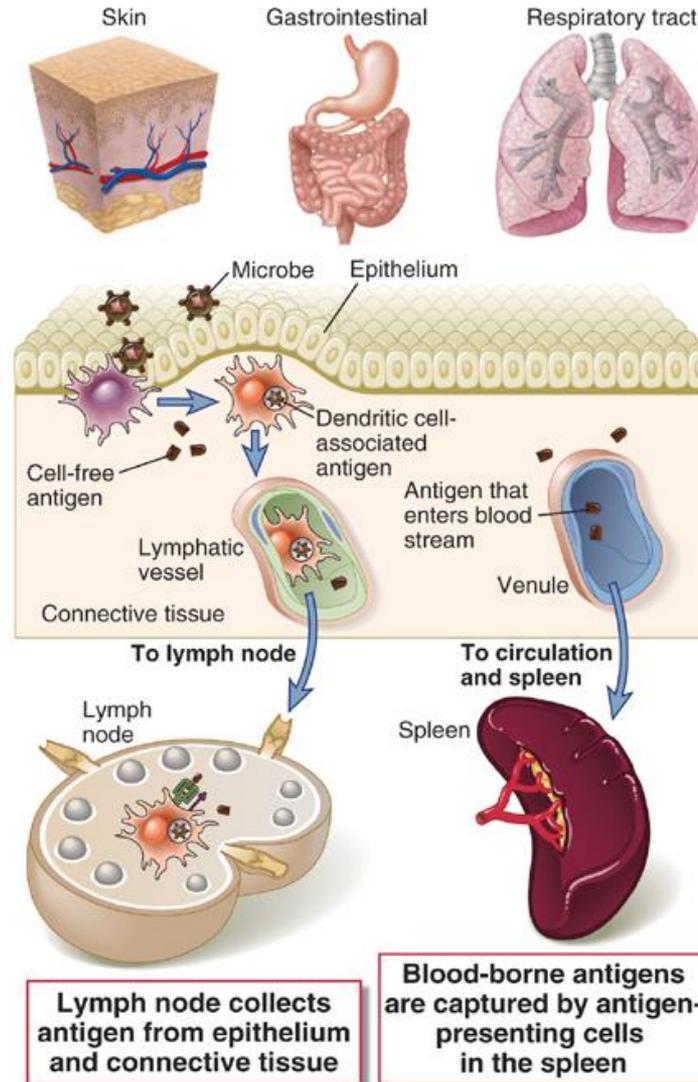
Regra 8 → MHC-I x TCD8, MHC-II x TCD4

Ativação de Linfócitos T: Reconhecimento do Antígeno (sinal 1)



Captura do antígeno e funções das células apresentadoras de antígenos (APCs)

Vias de Entrada do Antígeno



Células Presentadoras de Antígenos (APCs)

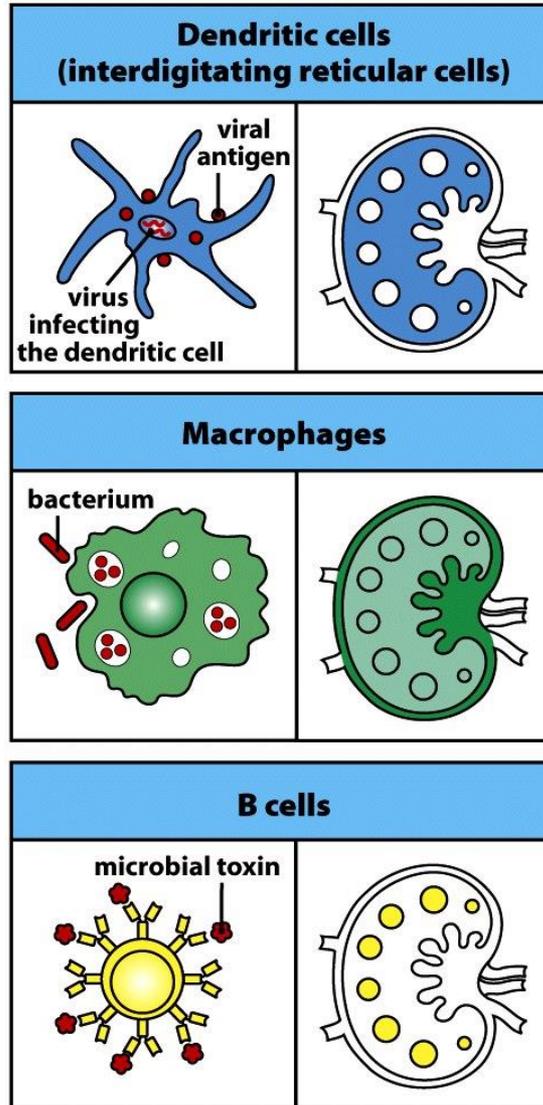
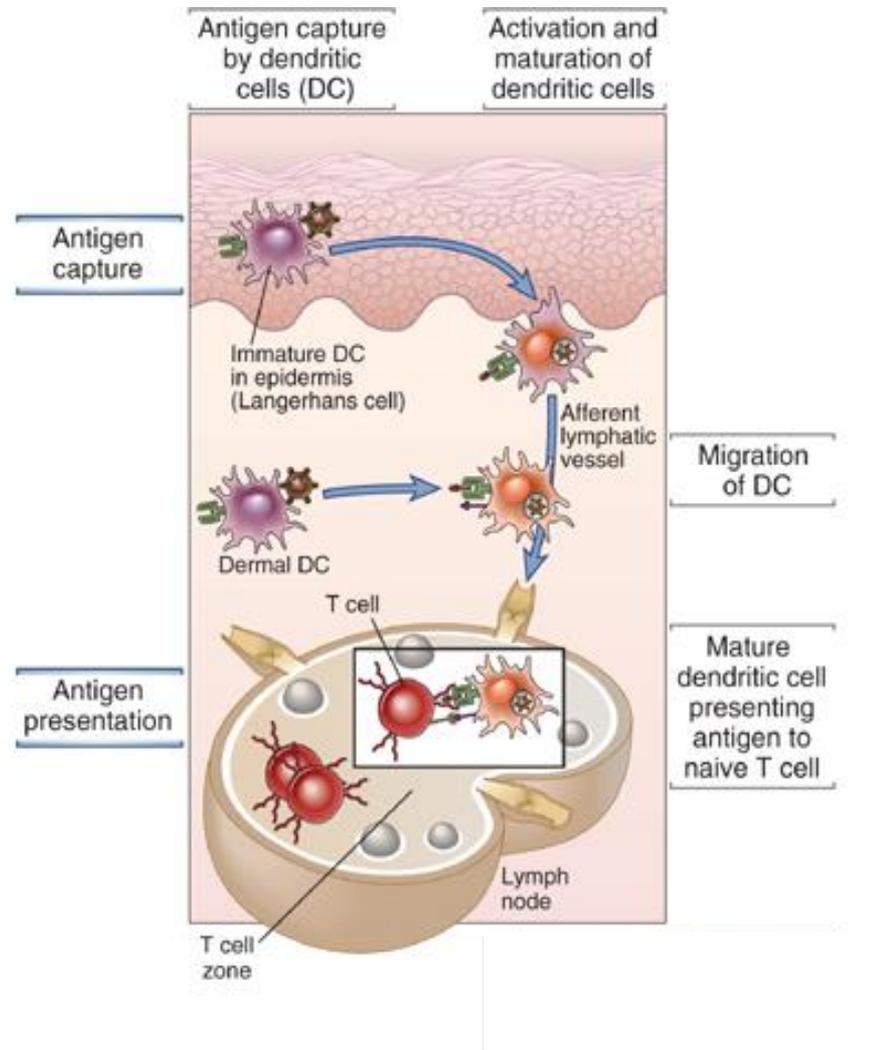


Figure 8-10 Immunobiology, 7ed. (© Garland Science 2008)

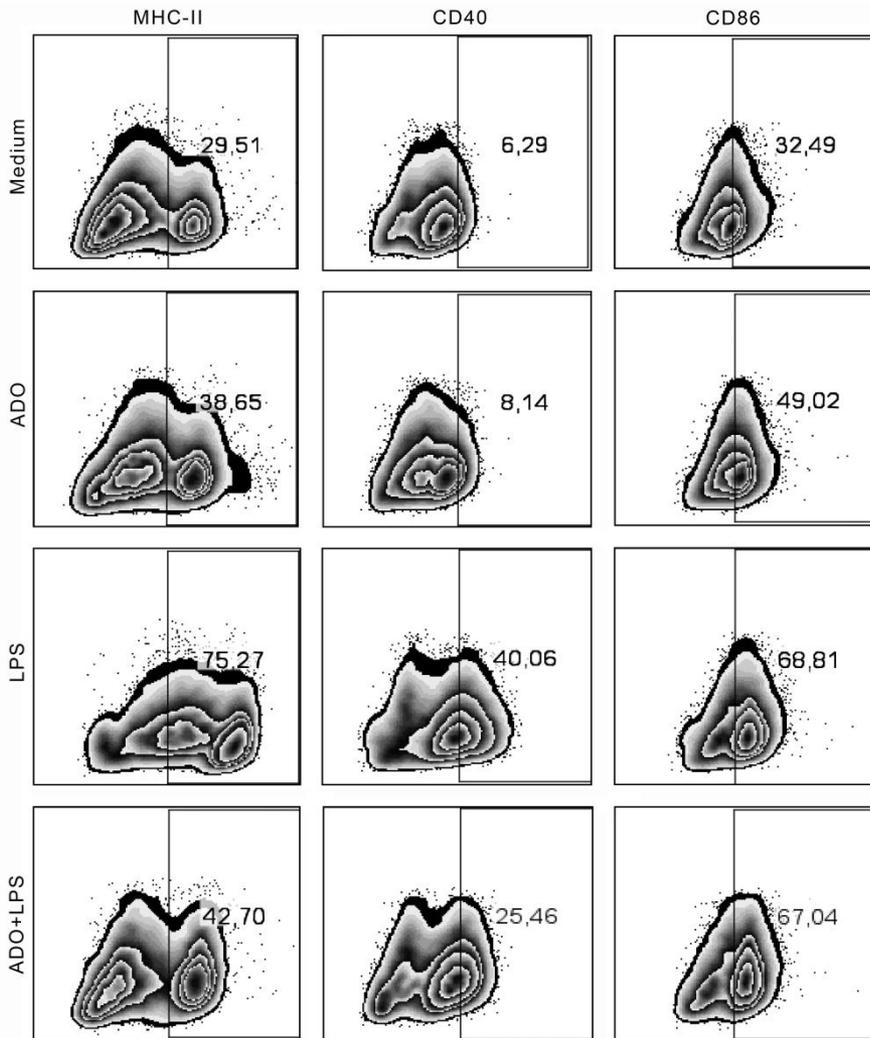
Papel de Células Dendríticas na Captura e Apresentação de Antígenos



Células expressando moléculas do MHC

Tecido	MHC de classe I	MHC de classe II
Tecidos linfoides		
Células T	+++	+*
Células B	+++	+++
Macrófagos	+++	++
Células dendríticas	+++	+++
Células epiteliais do timo	+	+++
Outras células nucleadas		
Neutrófilos	+++	-
Hepatócitos	+	-
Células renais	+	-
Células nervosas (cérebro)	+	-†
Células não-nucleadas		
Hemácias	-	-

Maturação de células dendríticas



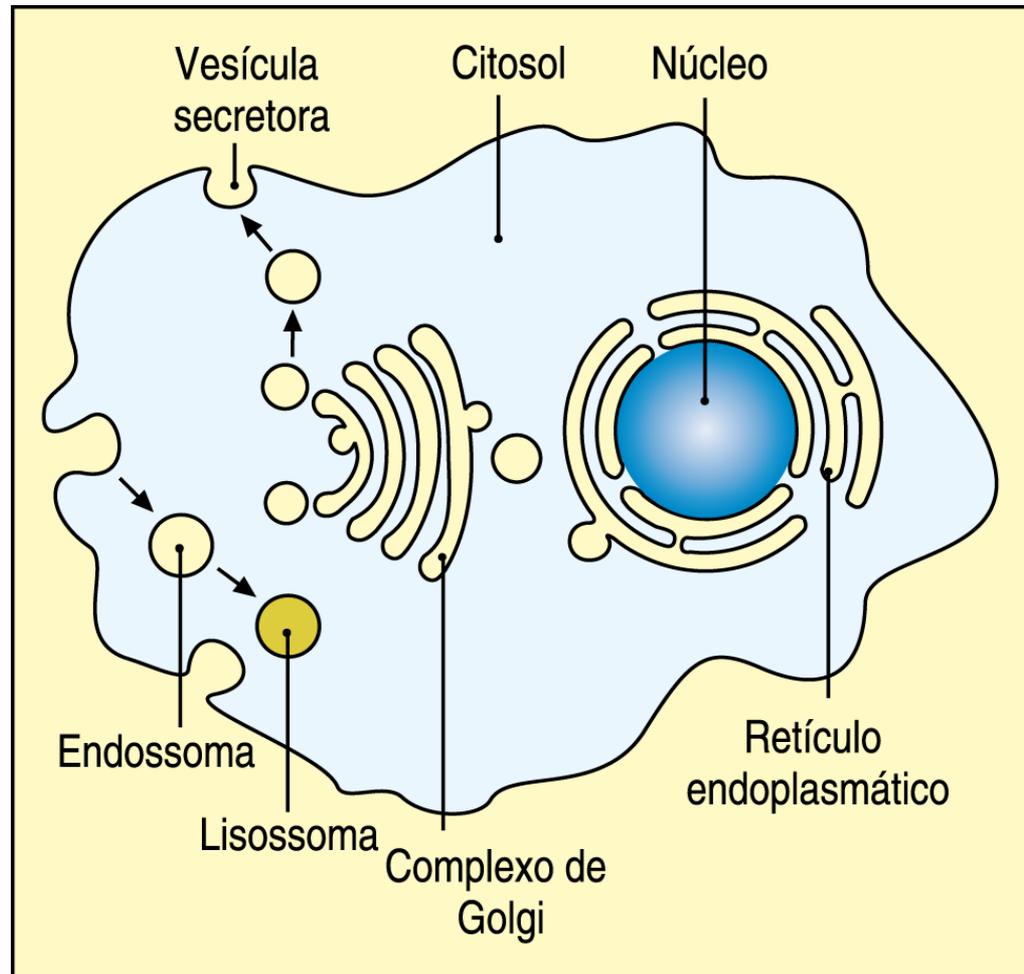
	Immature dendritic cell	Mature dendritic cell
Principal function	Antigen capture	Antigen presentation to T cells
Expression of Fc receptors, mannose receptors	++	-
Expression of molecules involved in T cell activation: B7, ICAM-1, IL-12	- or low	++
Class II MHC molecules		
Half-life	-10 hr	>100 hr
Number of surface molecules	~10 ⁶	~7 x 10 ⁶

cular Immunology, 7e.

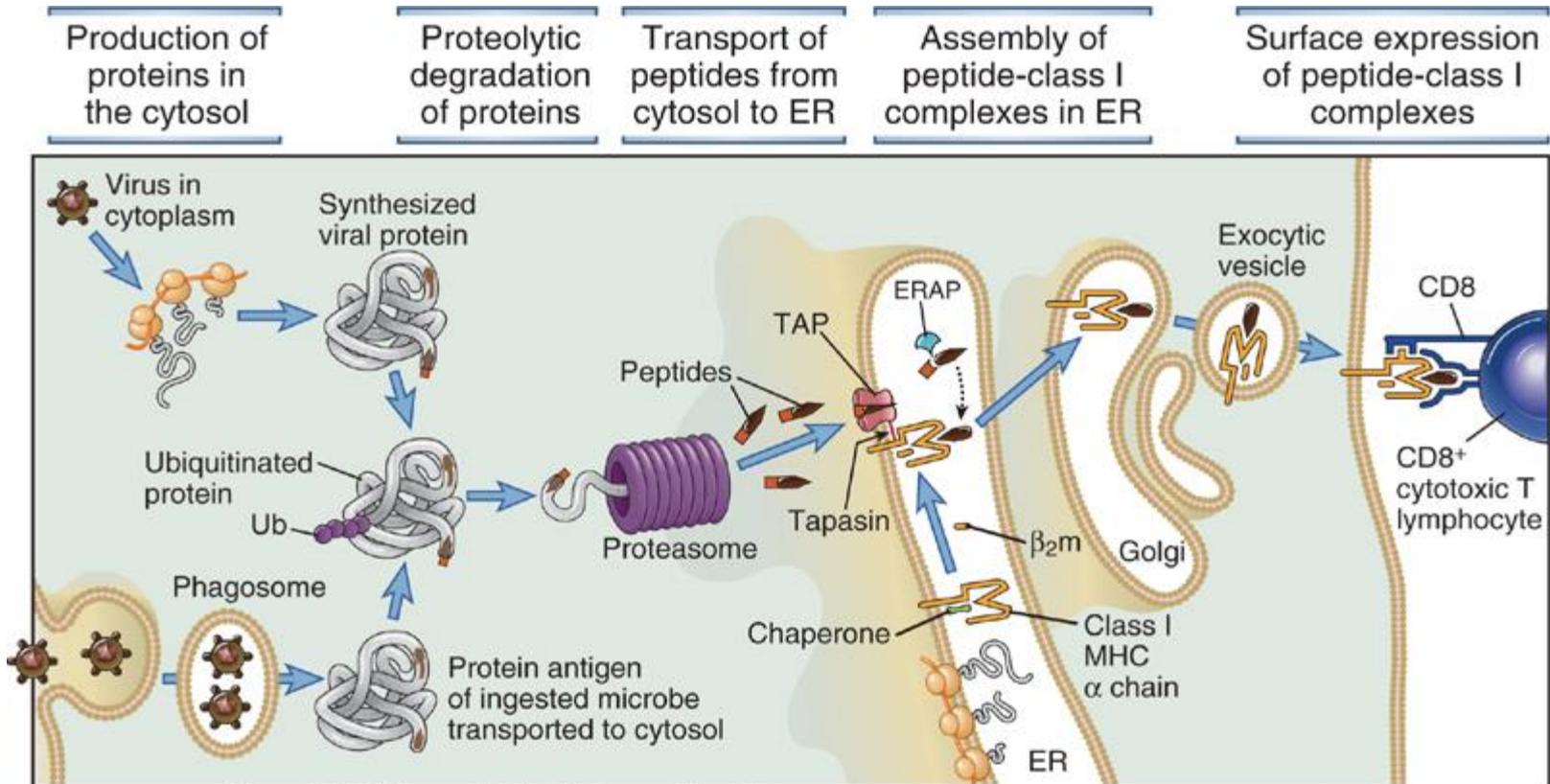
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Processamento e Apresentação de Antígenos

Compartimentos Intracelulares

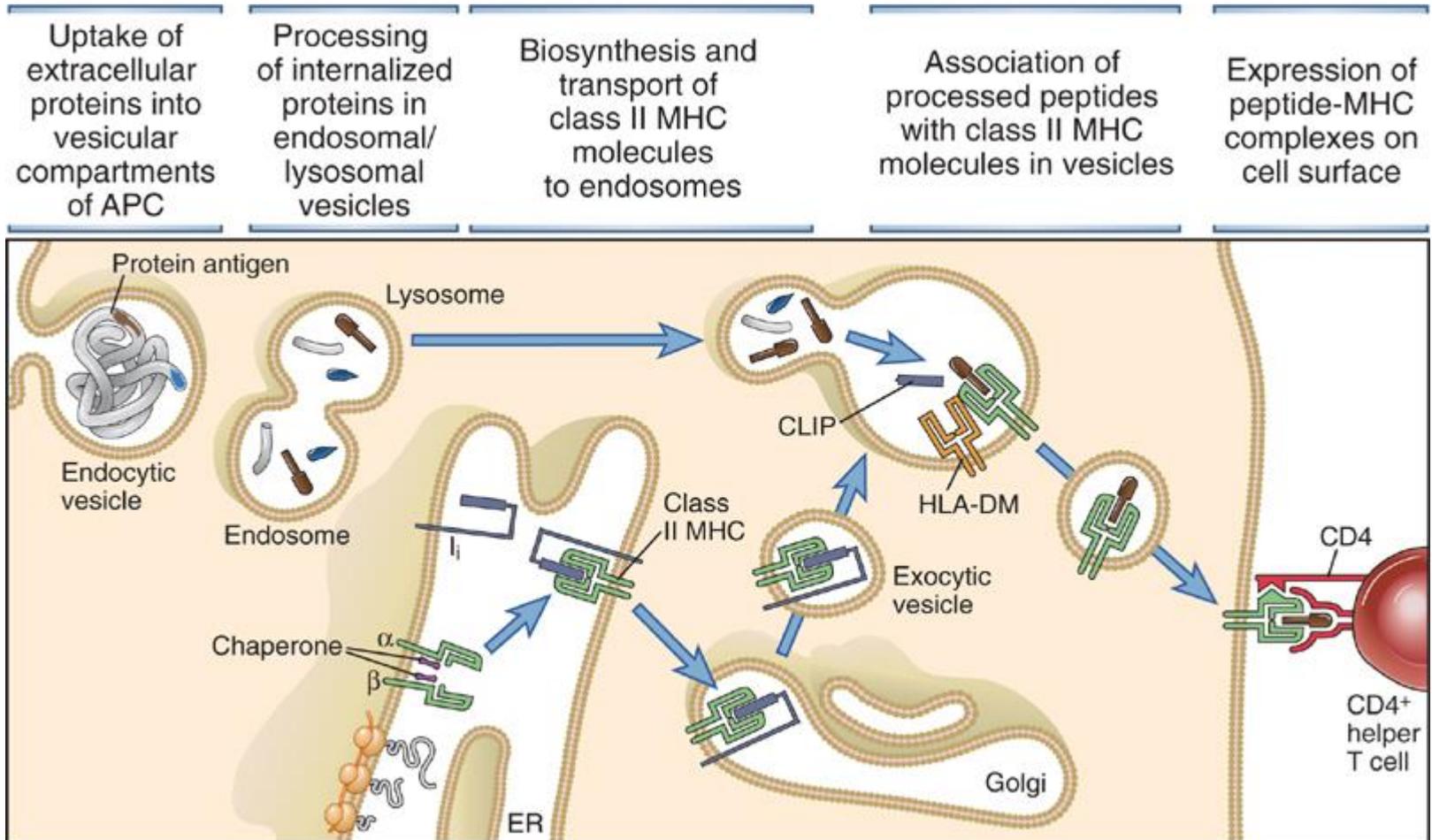


Apresentação de Antígenos via MHC-I

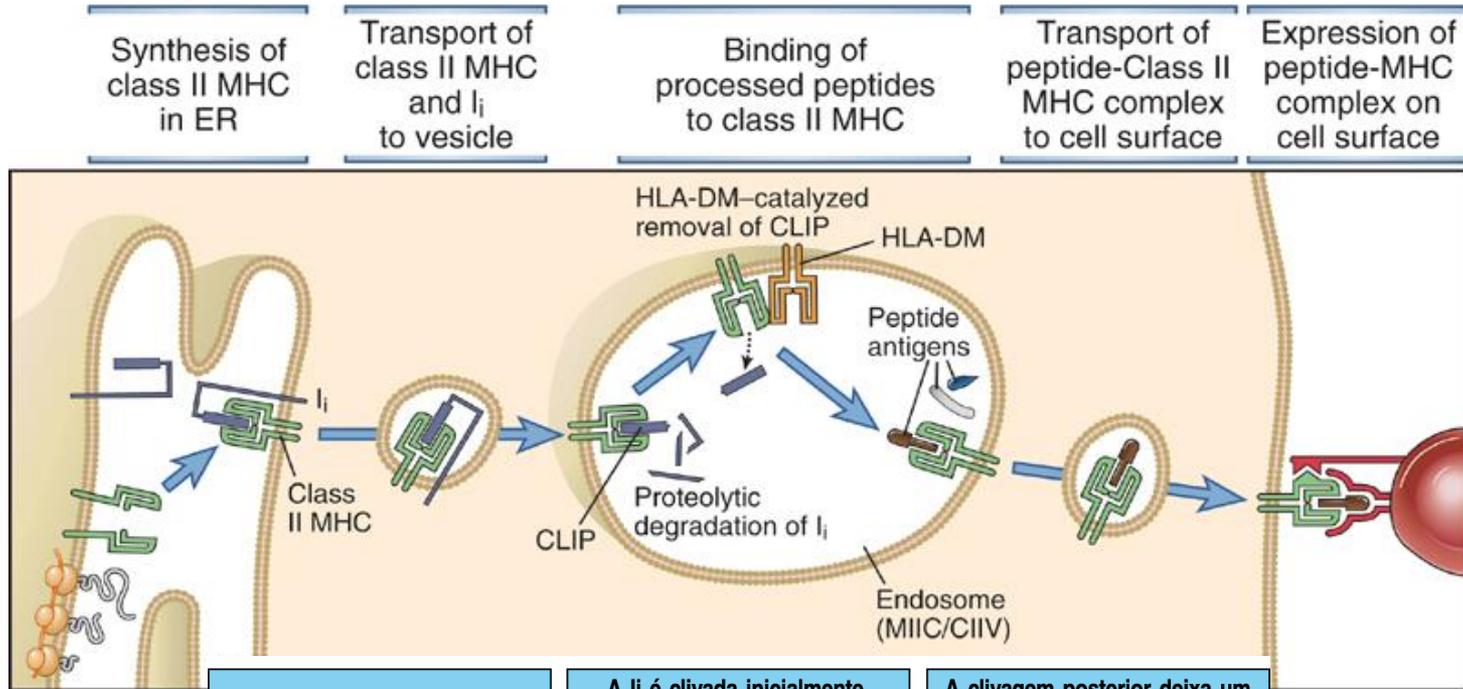


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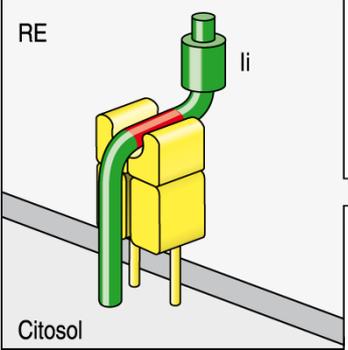
Apresentação de Antígenos via MHC-II



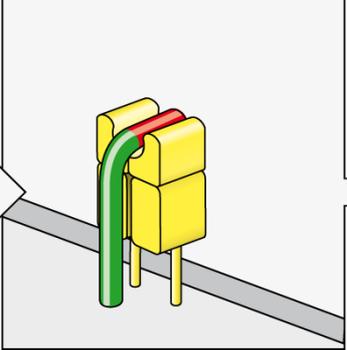
Cadeias Invariantes



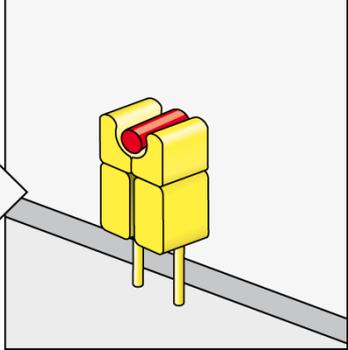
A cadeia invariável (I_i) liga-se ao sulco da molécula do MHC de classe II



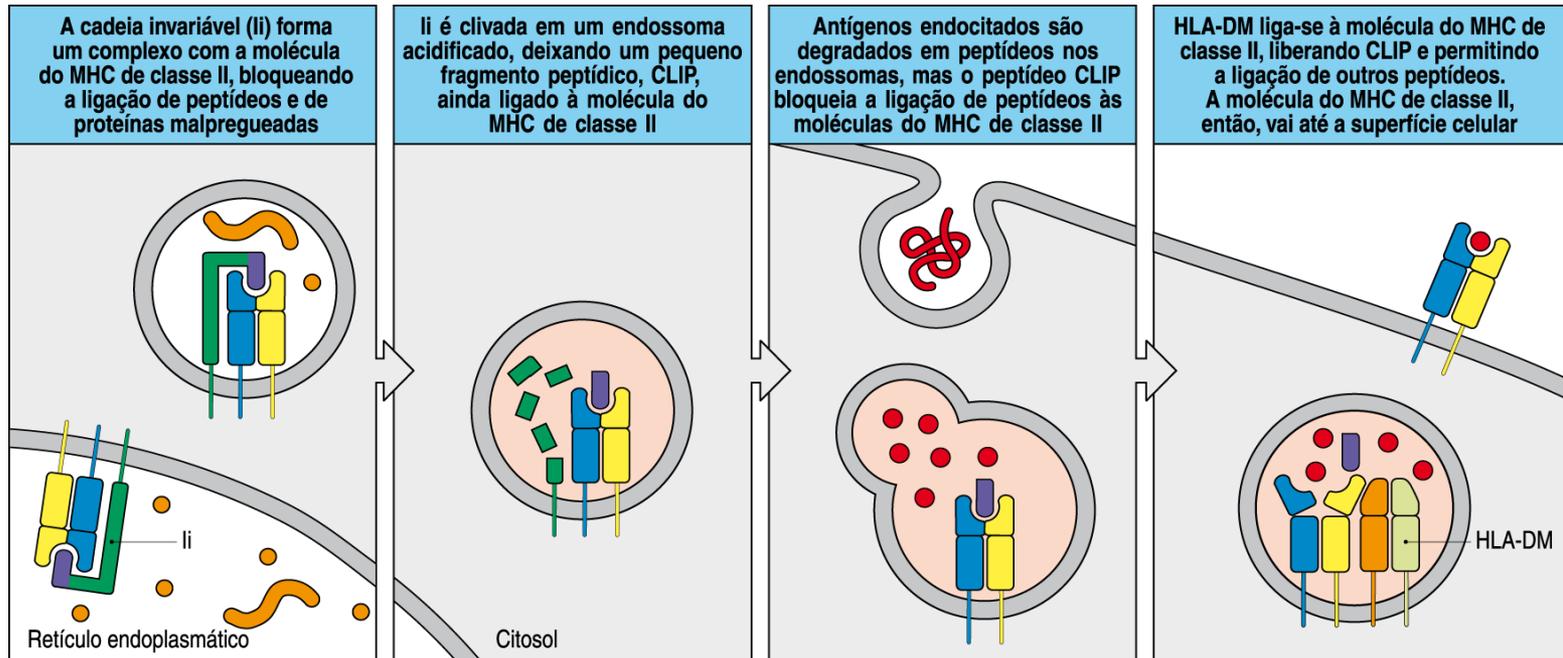
A I_i é clivada inicialmente deixando um fragmento ligado à molécula de classe II e à membrana



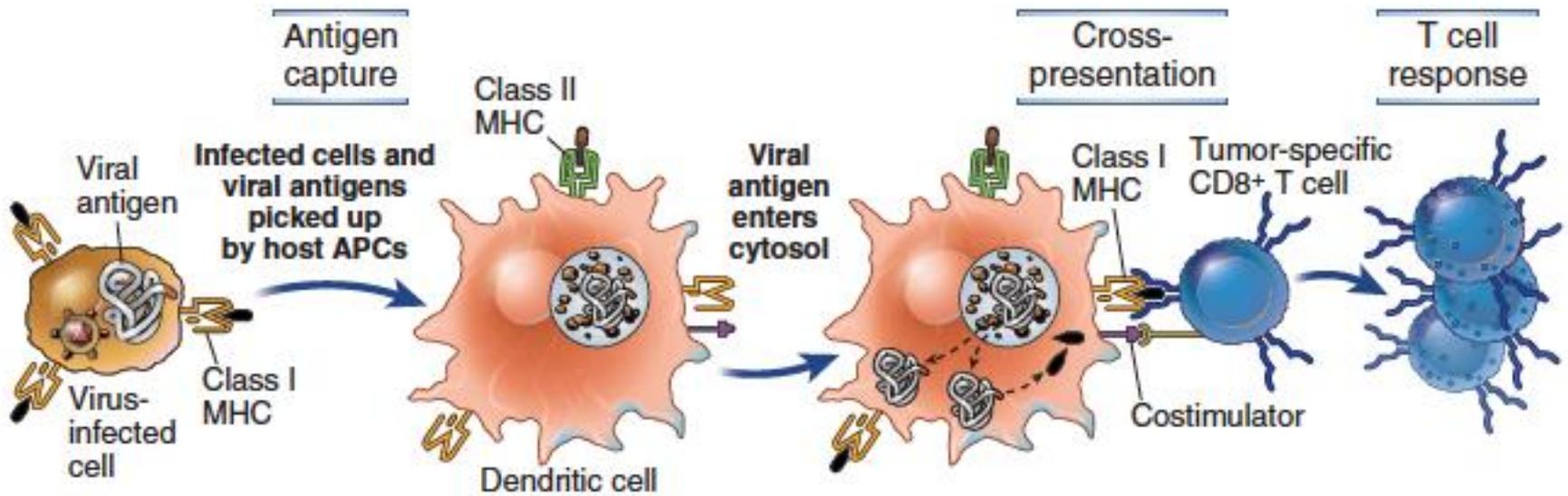
A clivagem posterior deixa um pequeno fragmento peptídico, CLIP, ligado à molécula do MHC de classe II



HLA-DM



Apresentação cruzada de antígenos



Referências:

✓ Imunologia Celular e Molecular (Abbas -9a edição) Capítulo 6 pgs 117- 124, 129-142.

✓ Immunobiologia (Janeway – 8a edição)

Capítulo 6 pgs 201-217.

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