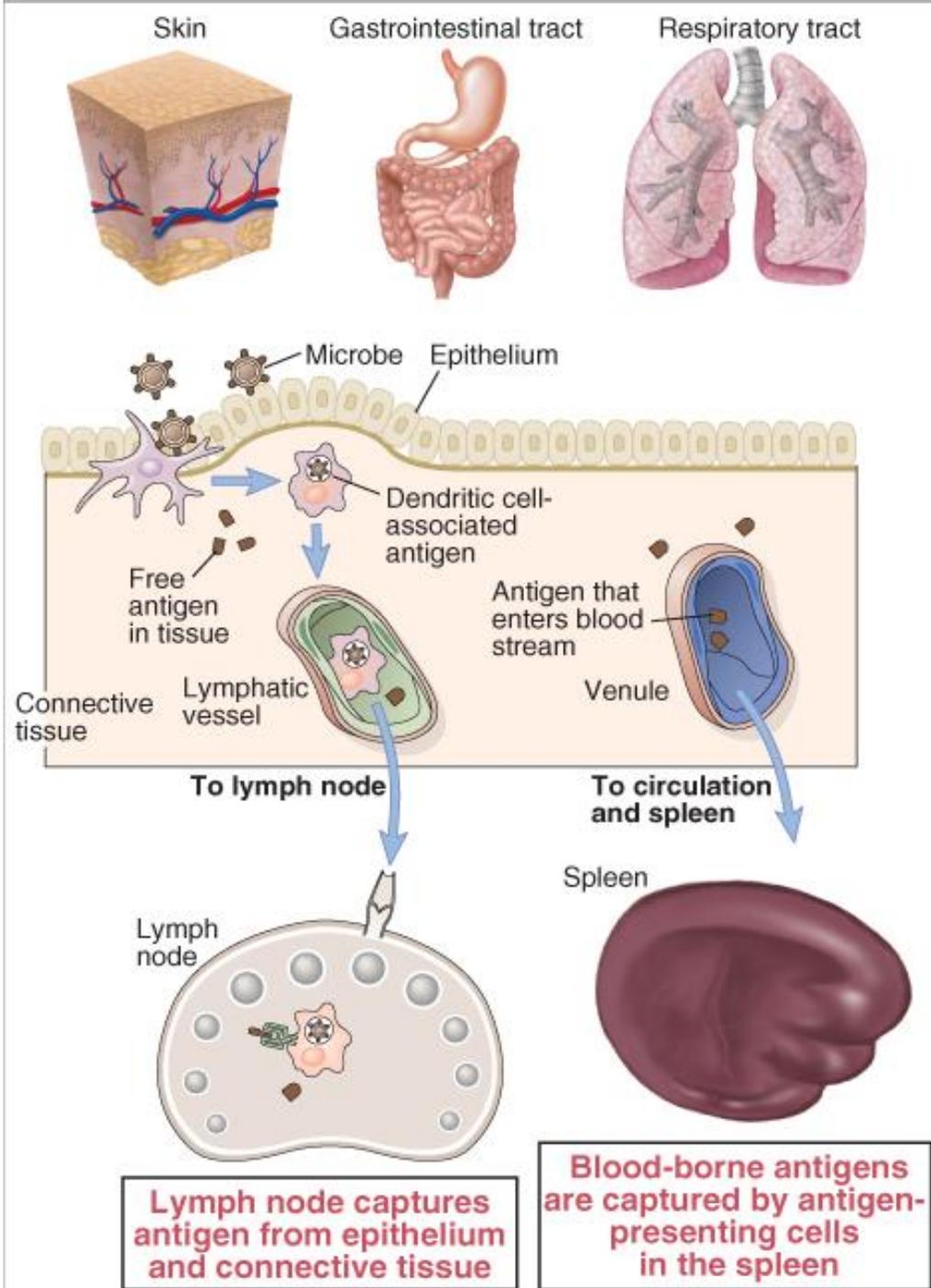
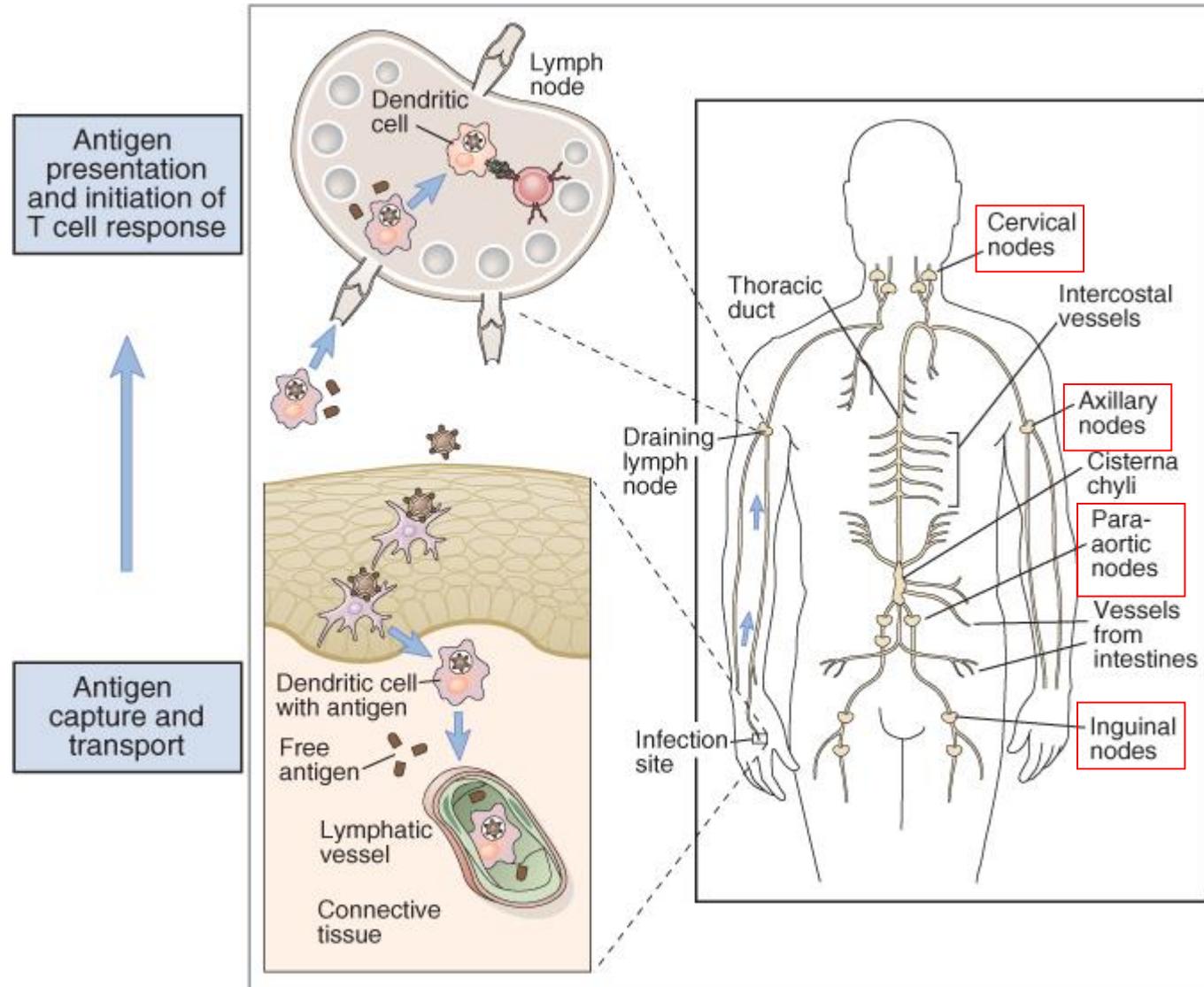


**L'incontro tra l'antigene e le cellule del SI specifico avviene a livello degli organi linfoidi secondari**



# Principali stazioni linfonodali

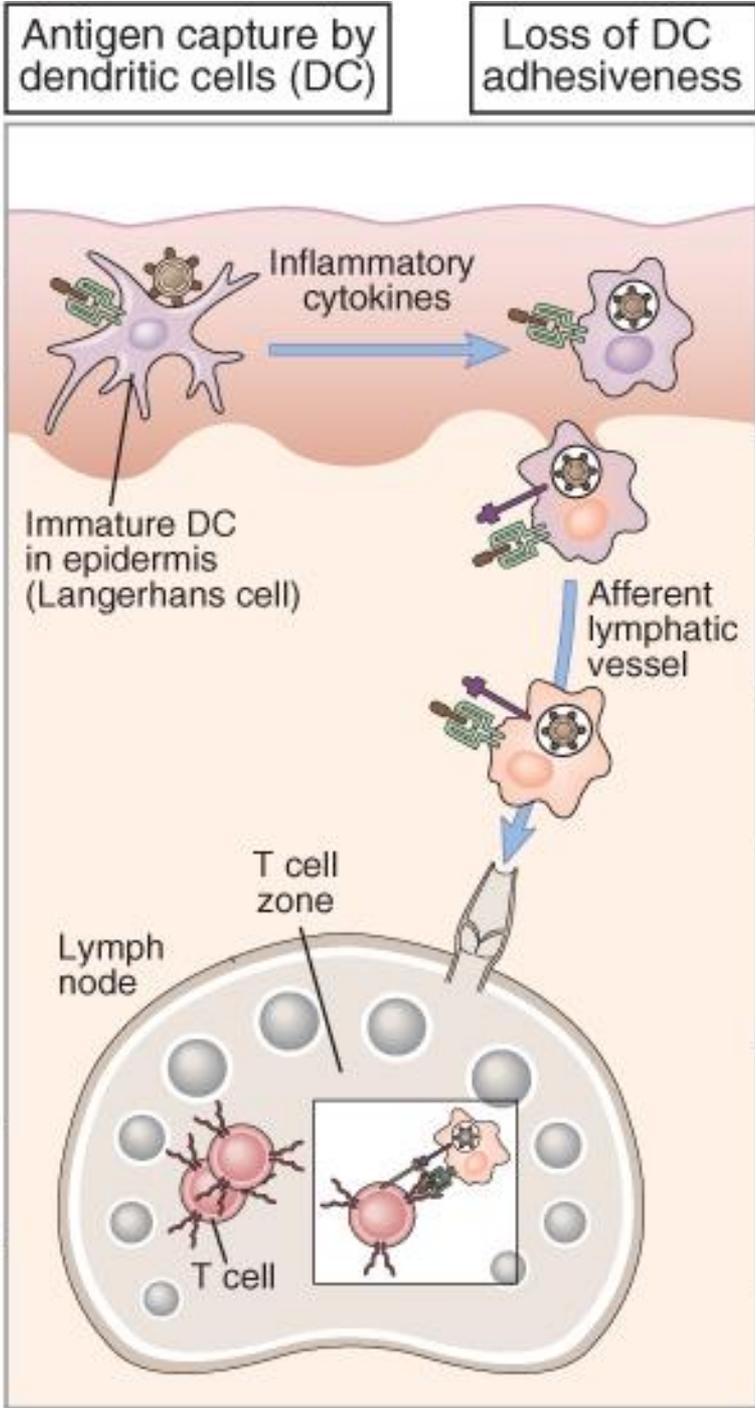
500-600 linfonodi distribuiti in tutto il corpo, con agglomerati situati nelle ascelle, inguine, collo, torace, e addome



# TRASPORTO DEGLI ANTIGENI AI LINFONODI DA PARTE DELLE CELLULE DENDRITICHE

Antigen capture

Antigen presentation

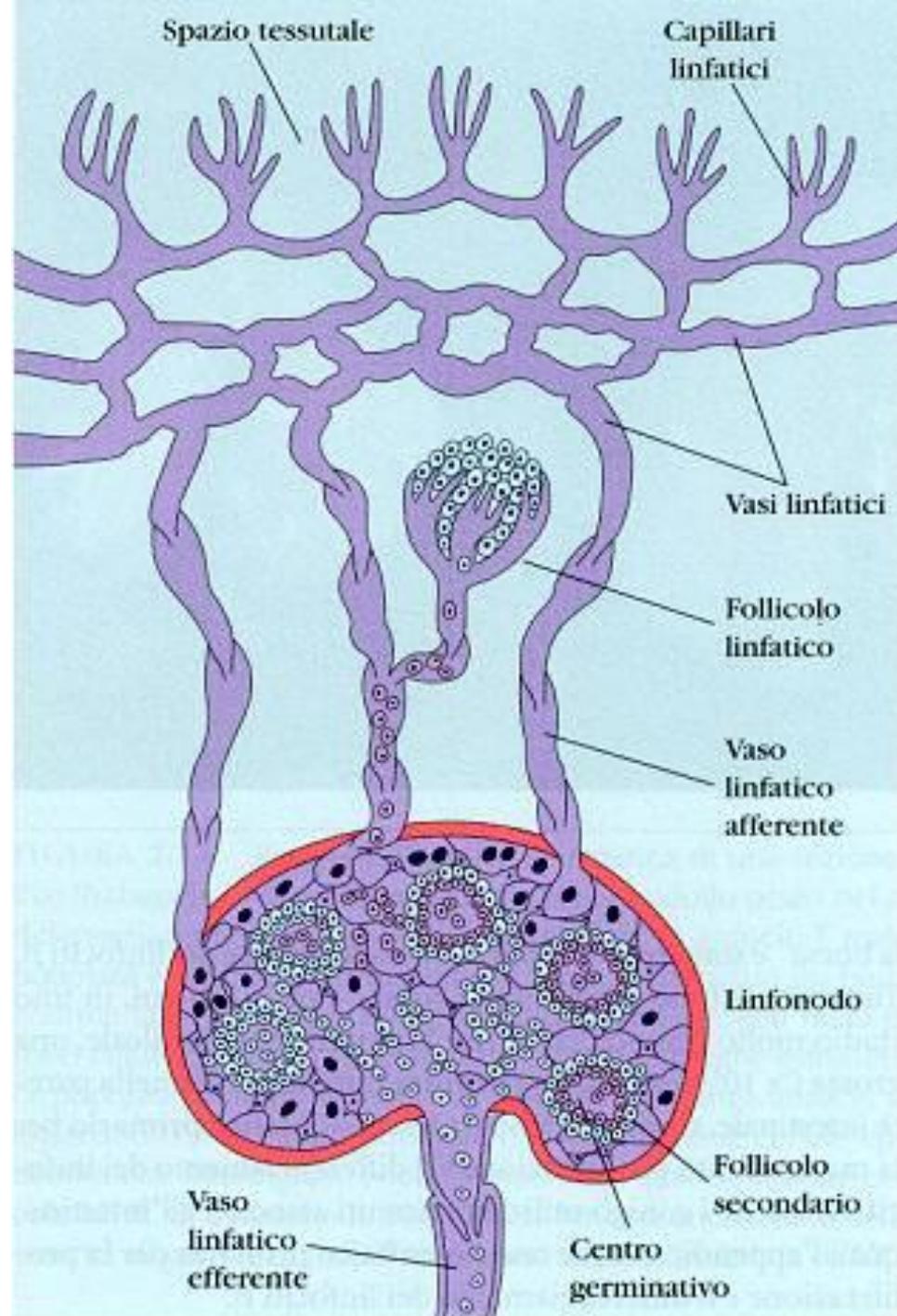


Migration of DC

Maturation of migrating DC

Mature dendritic cell presenting antigen to naive T cell

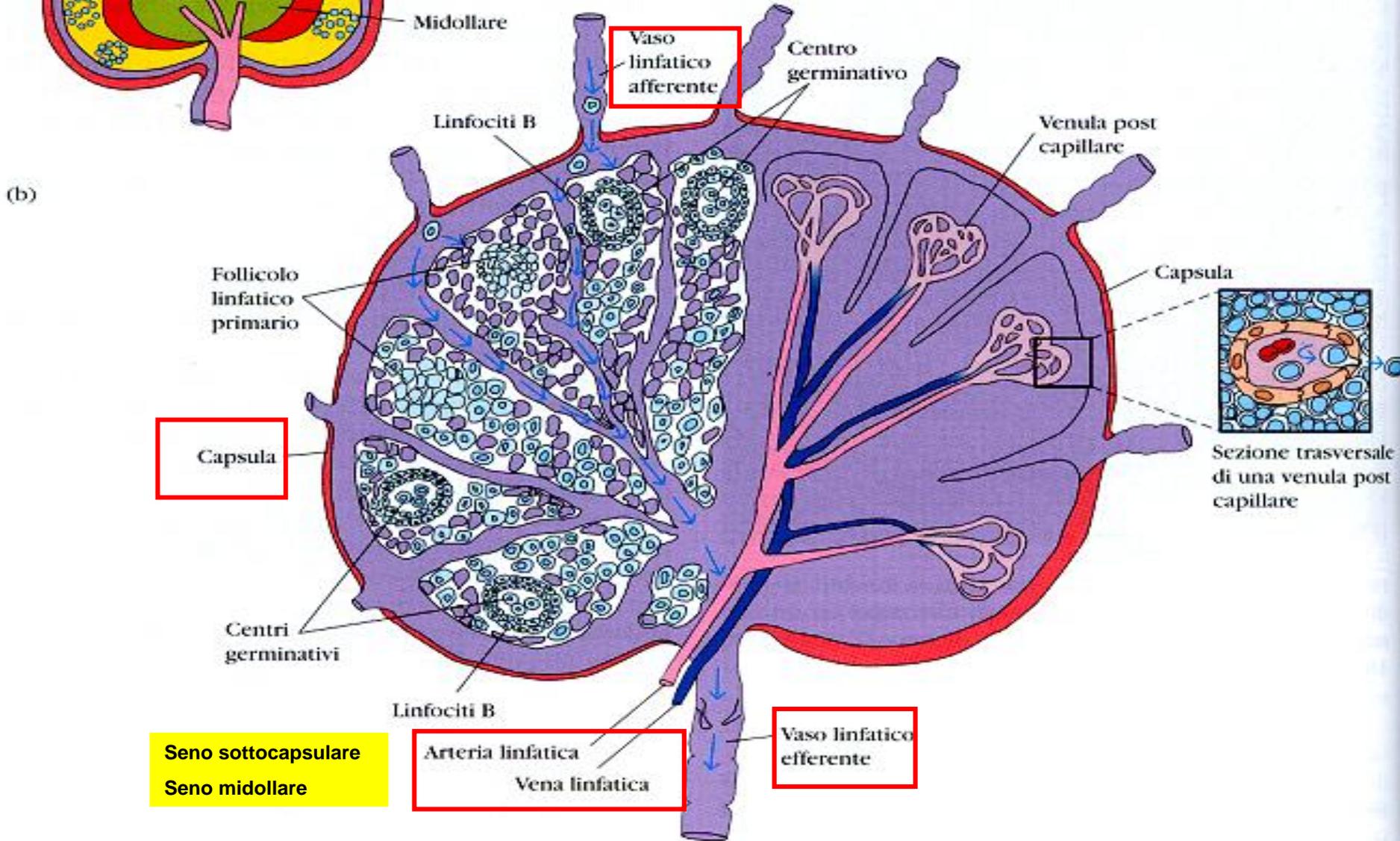
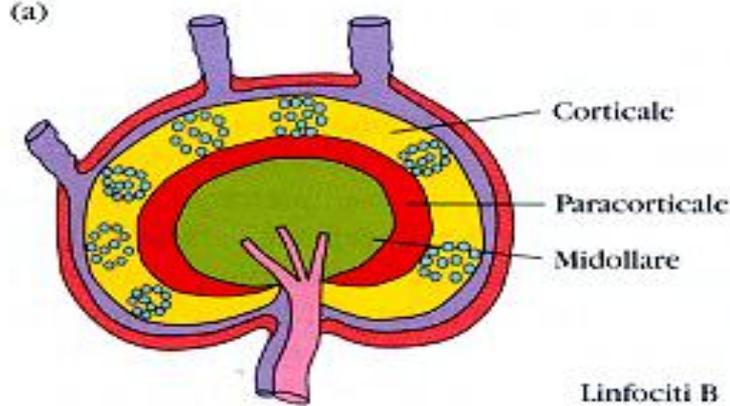
**L'antigene arriva  
al linfonodo  
attraverso i vasi  
linfatici afferenti**



# CARATTERISTICHE DELLE CELLULE DENDRITICHE MATURE ED IMMATURE

	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 on surface	~10 hr	>100 hr
Number of surface molecules	~10 <sup>6</sup>	~7 x 10 <sup>6</sup>

# STRUTTURA DEL LINFONODO



# STRUTTURA DEL LINFONODO

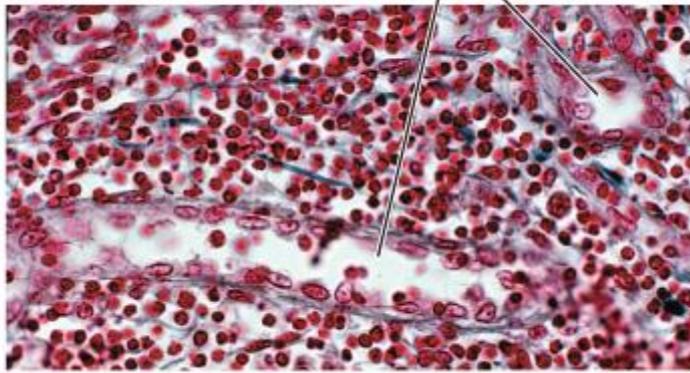
(b)



# Migrazione dei linfociti vergini al linfonodo

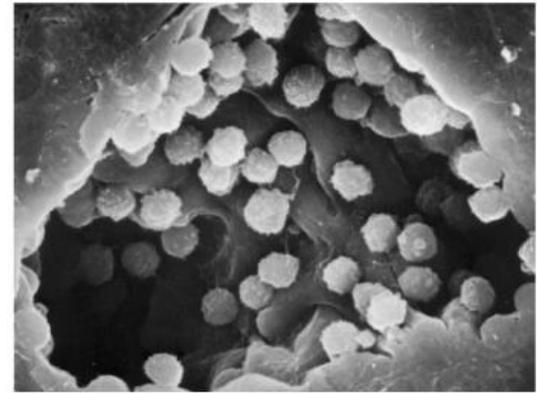


A HEV in lymph node

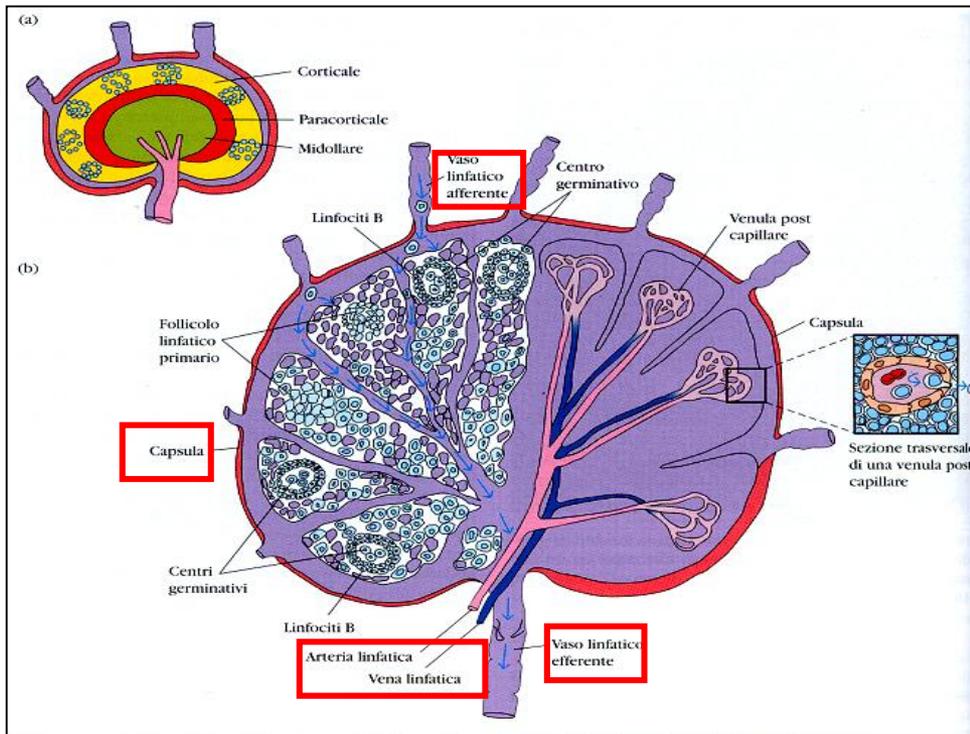


HEVs

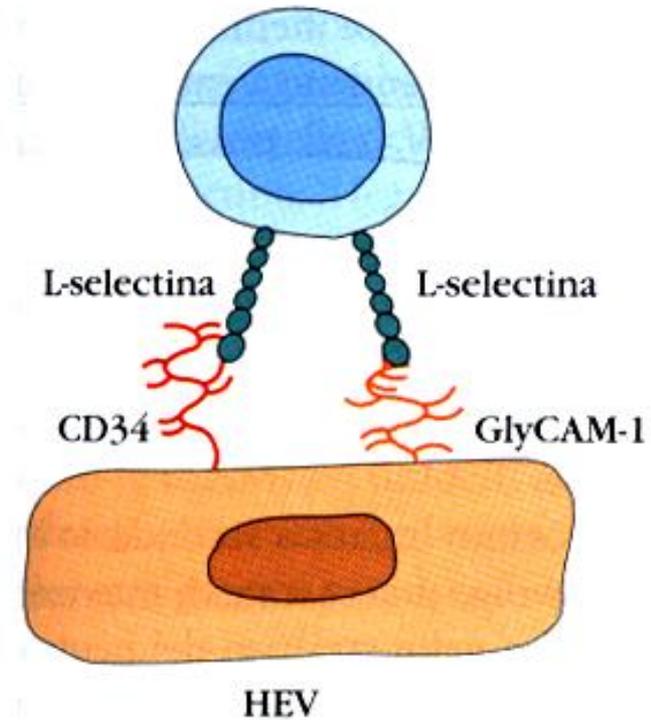
D T cells binding to HEV: electron micrograph



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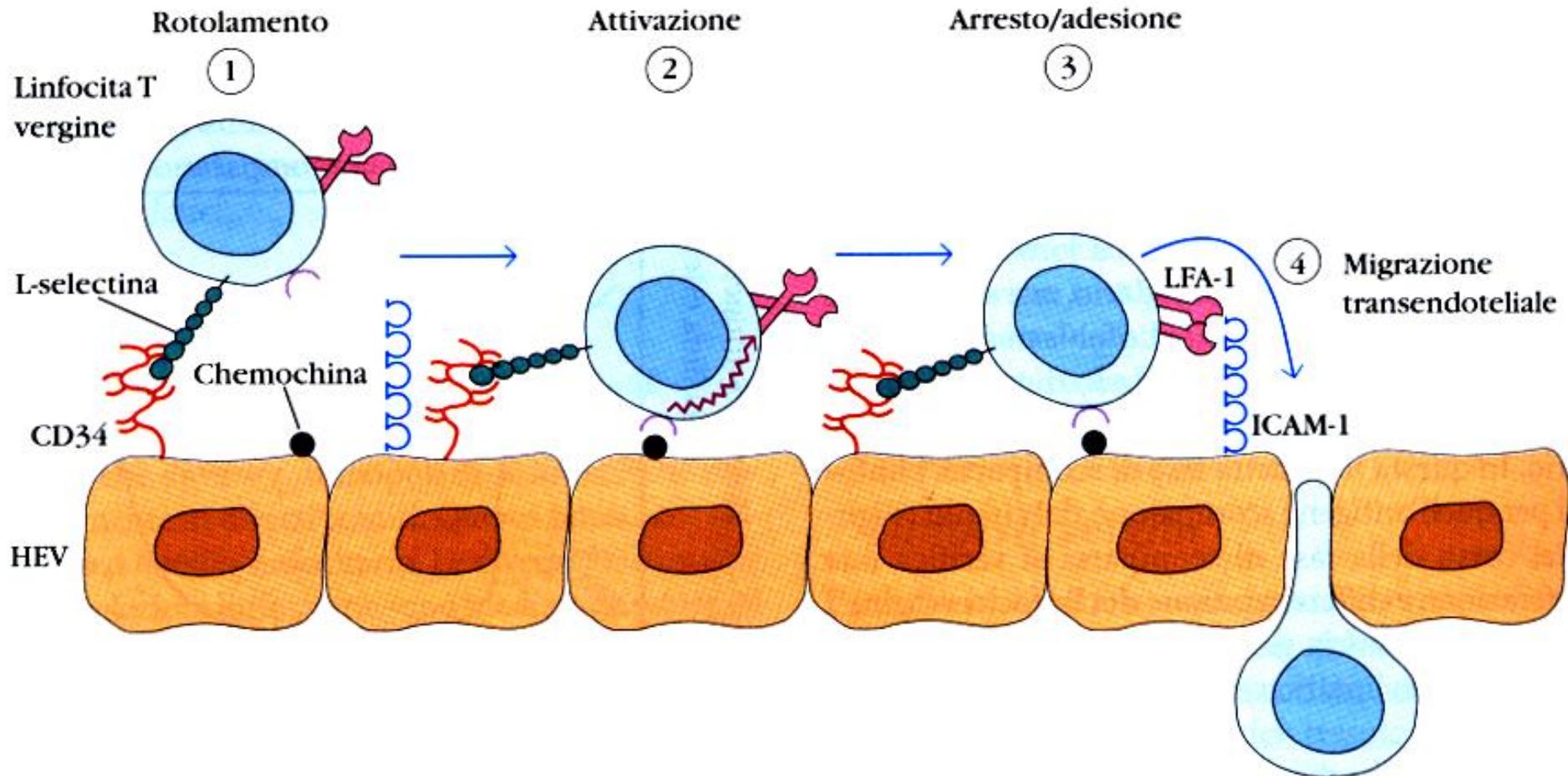


Linfocita T vergine



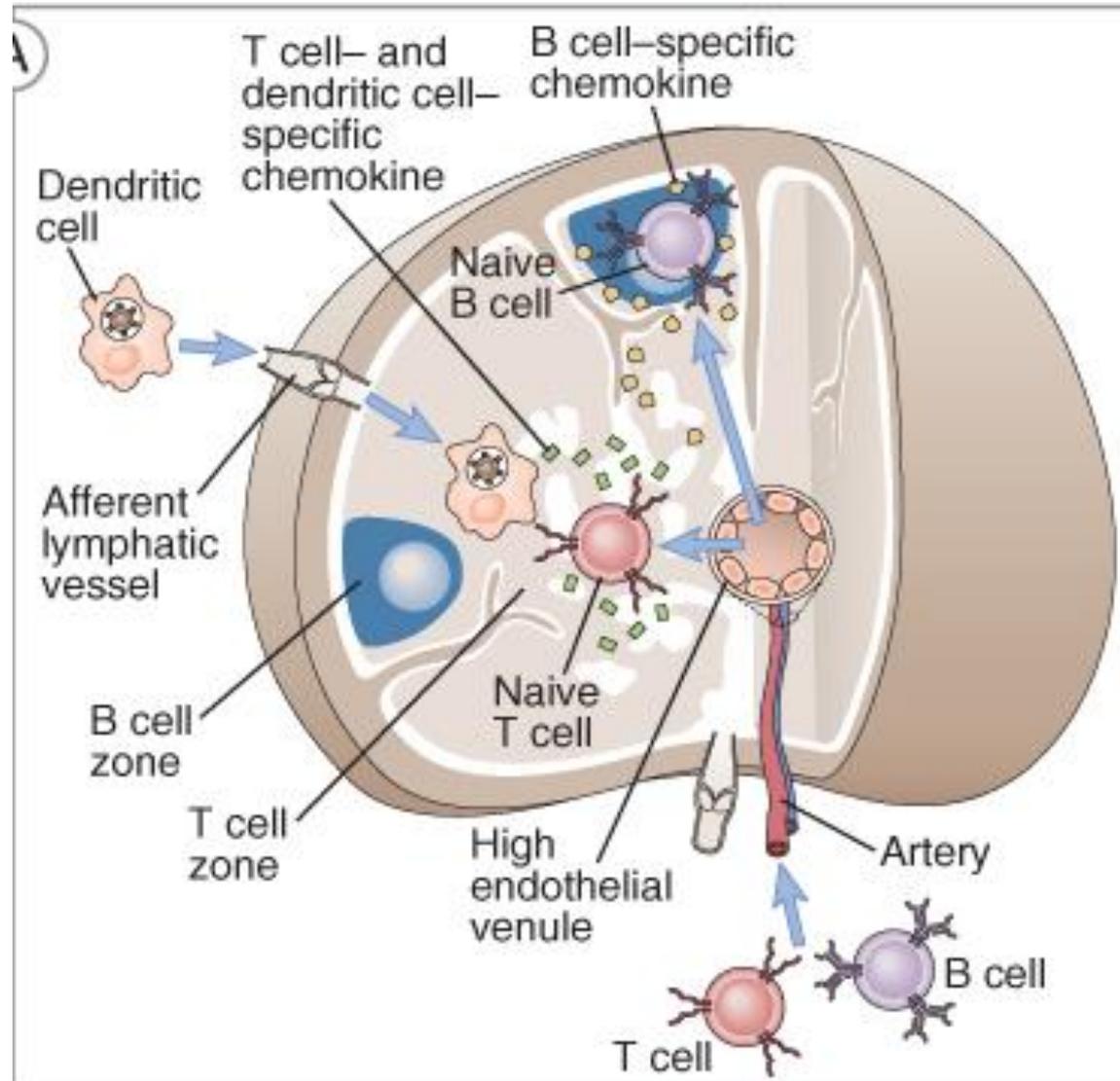
HEV: High endothelial venules

# Migrazione dei linfociti T vergini al linfonodo



# Principali chemochine presenti nel linfonodo

- Le chemochine indirizzeranno i T e le cellule dendritiche verso la zona paracorticale ed i linfociti B verso i follicoli
- CCR7 (T naïve e DC)  
(CCL19-CCL21)
- CXCR5 (B naïve)  
(CXCL13)



# Ricircolazione linfocitaria

I linfociti vergini individuano gli antigeni ricircolando attraverso i linfonodi

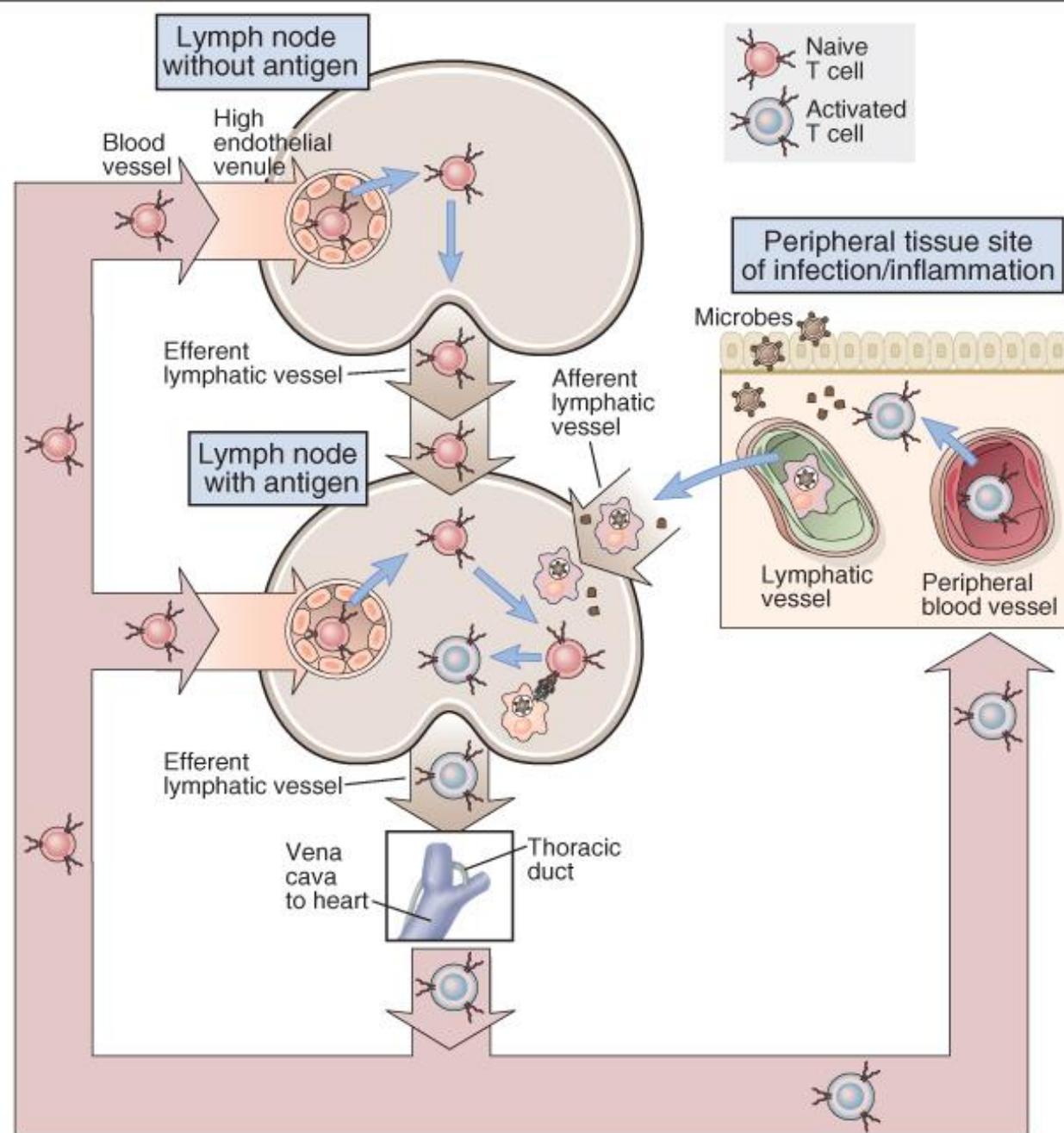
# Ricircolazione linfocitaria

I linfociti rientrano nella circolazione sanguigna a livello della vena cava superiore attraverso il:

Dotto toracico: vasi linfatici parte sottodiaframmatica

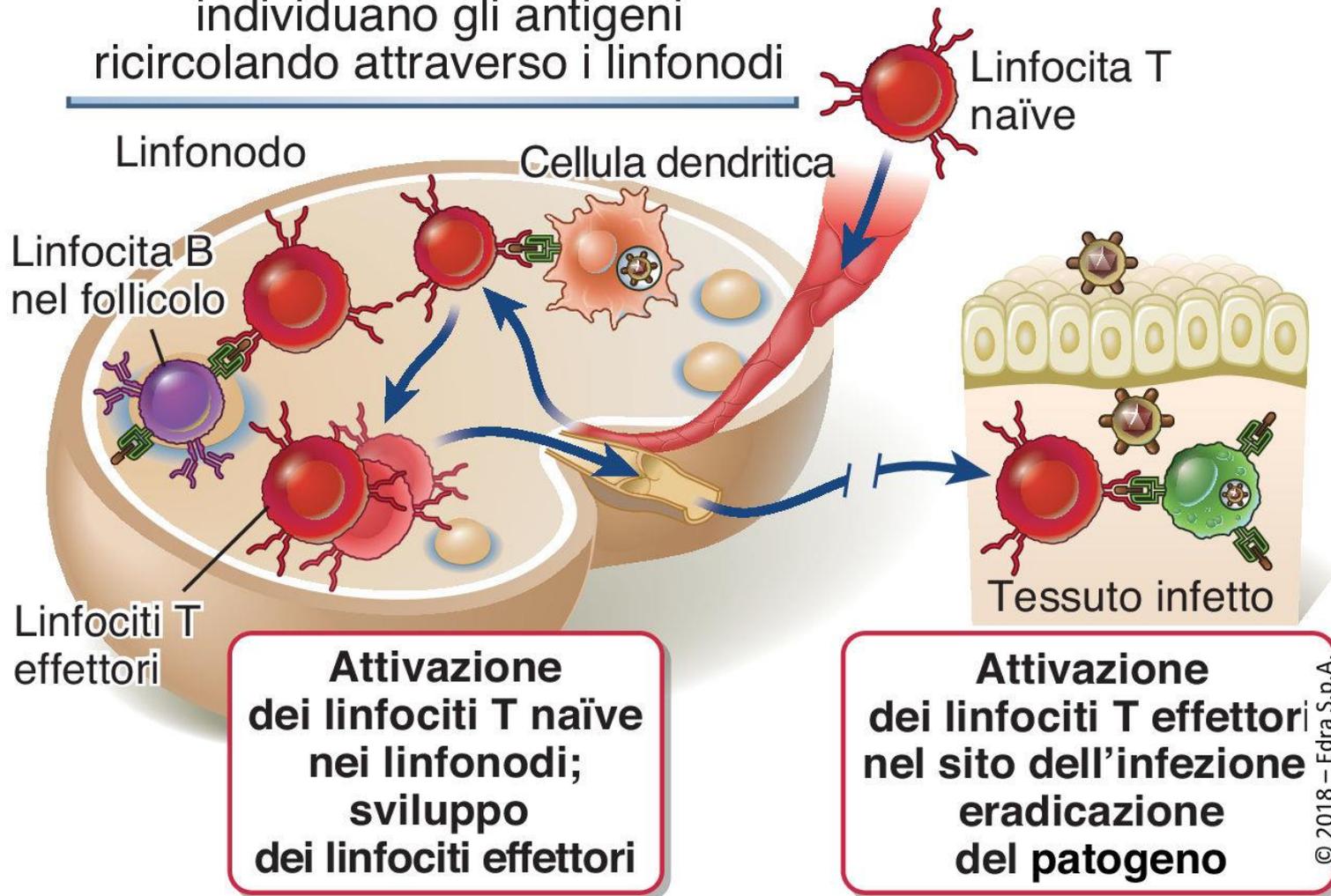
Tronco linfatico giugulare, succlavio e broncomediastinale (metà testa, collo, arto superiore, torace)

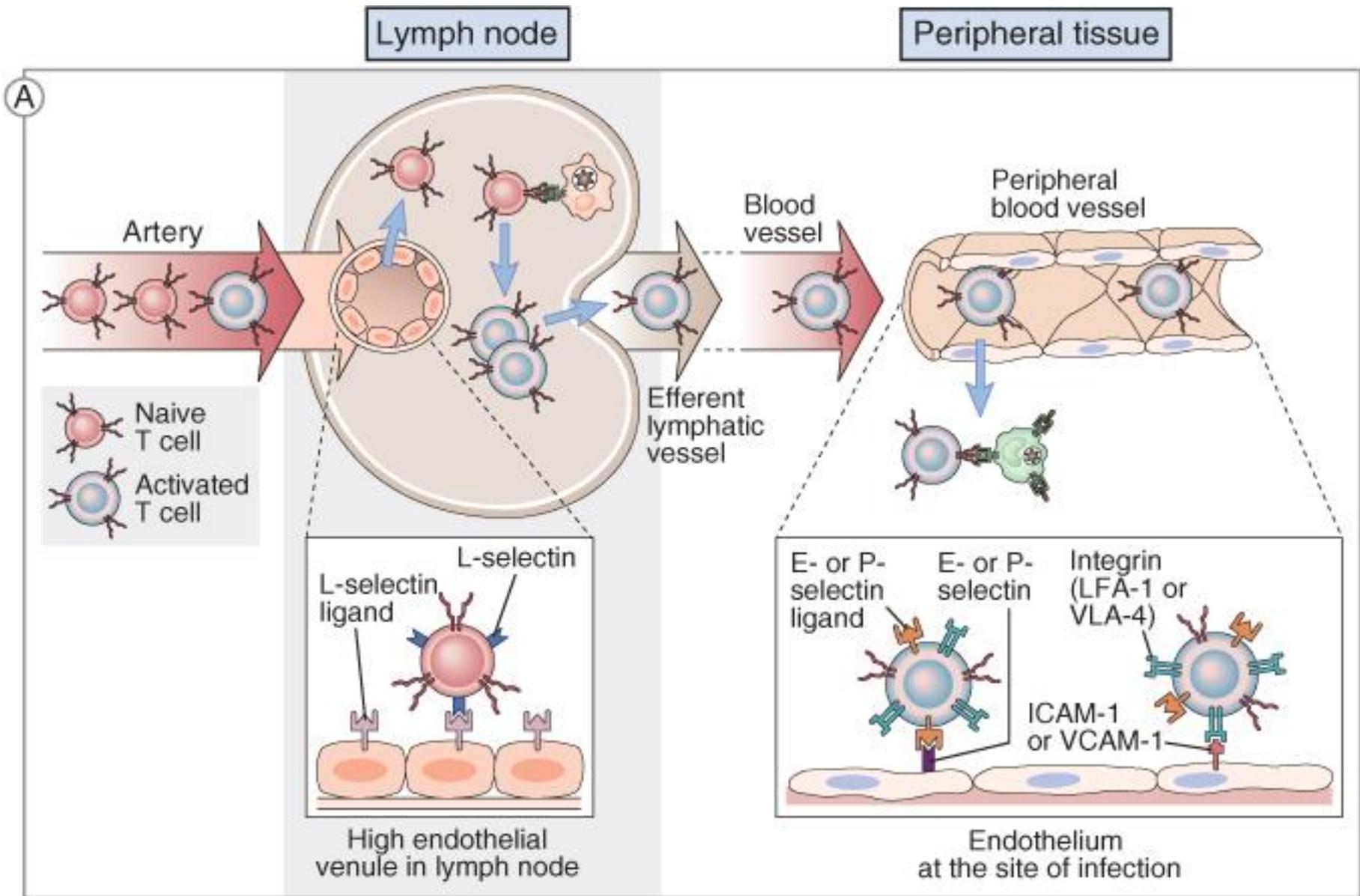
**Tali vasi linfatici mettono tutti capo al sistema della vena cava superiore**



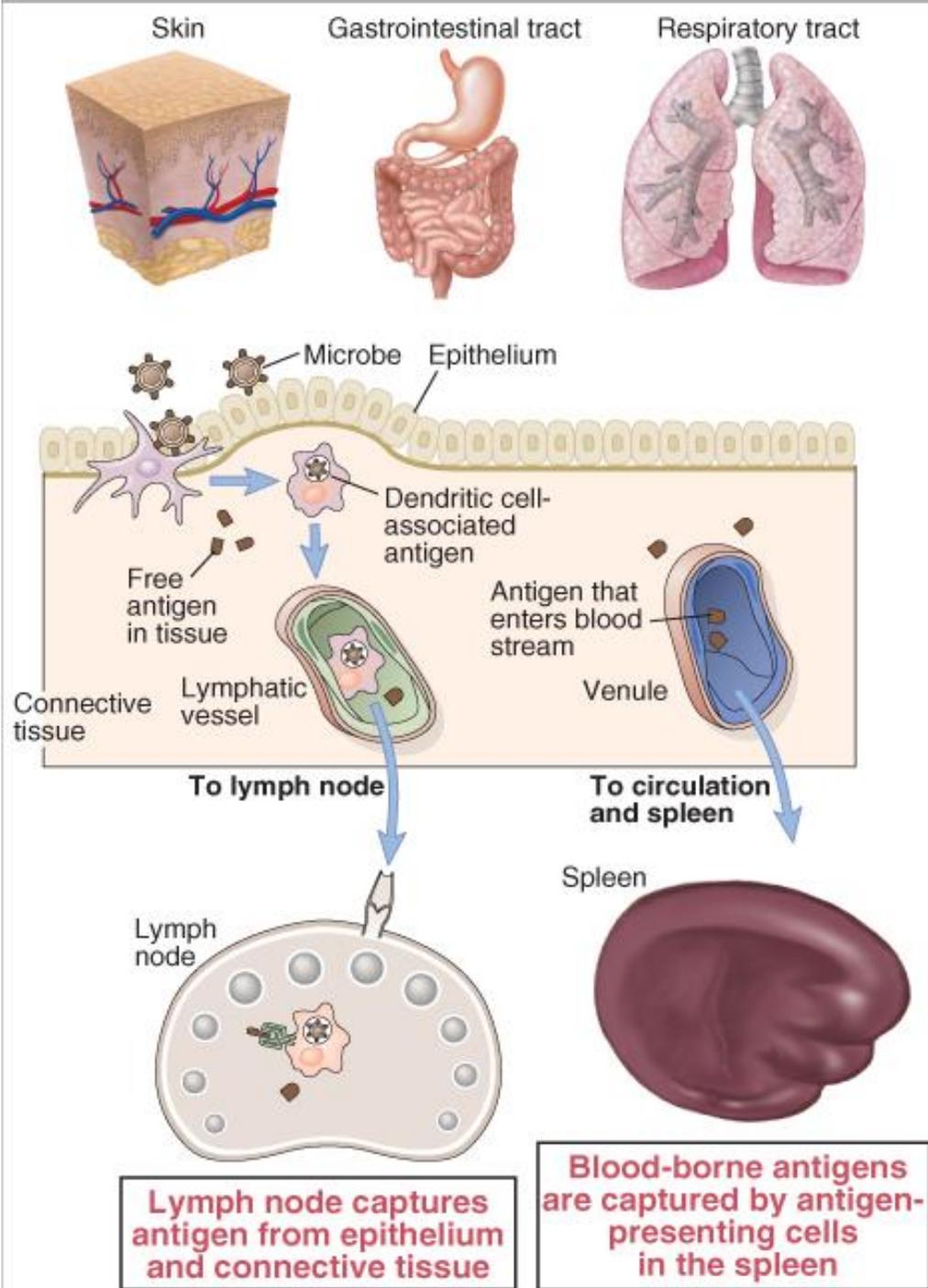
# L'attivazione dei linfociti Th CD4+

I linfociti T naïve  
individuano gli antigeni  
ricircolando attraverso i linfonodi



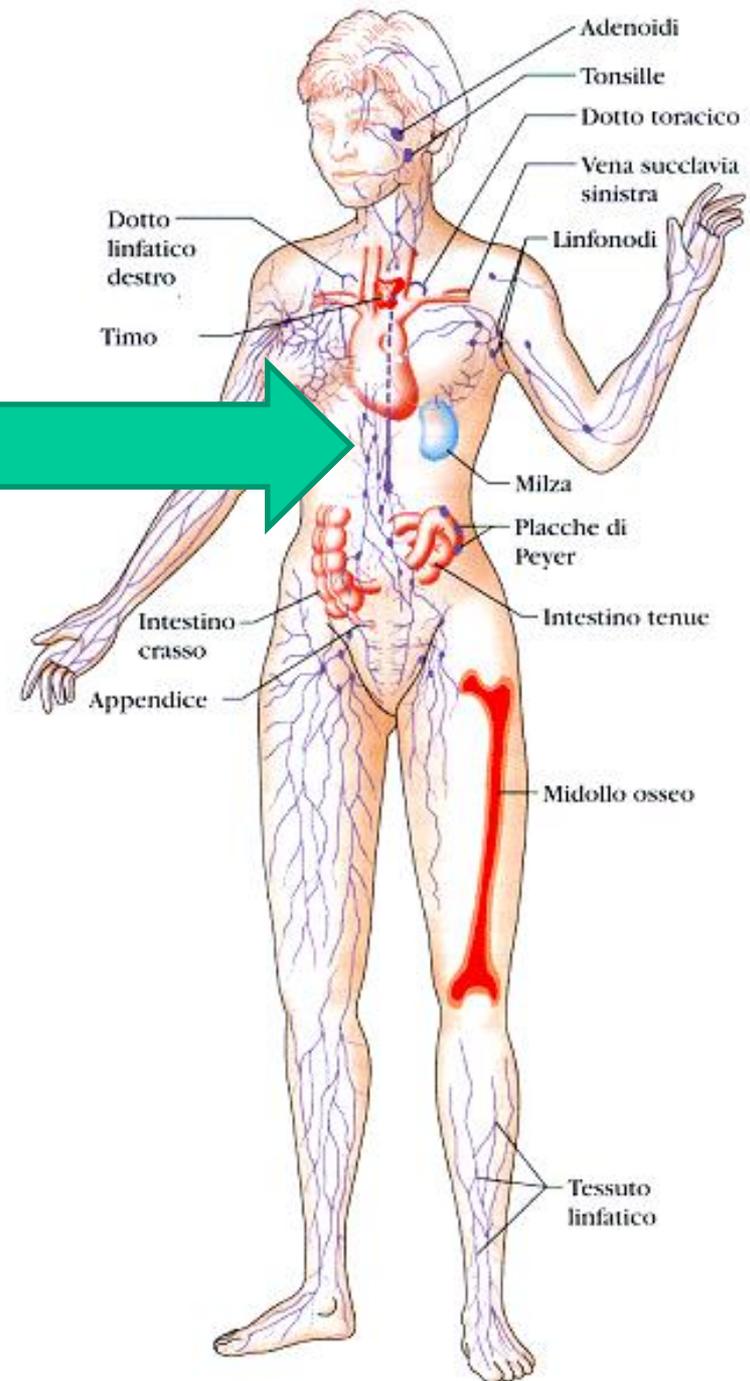


**L'incontro tra l'antigene presente nella circolazione sanguigna e le cellule del SI specifico avviene a livello della milza**



# MILZA

Quadrante  
superiore sinistro  
dell'addome



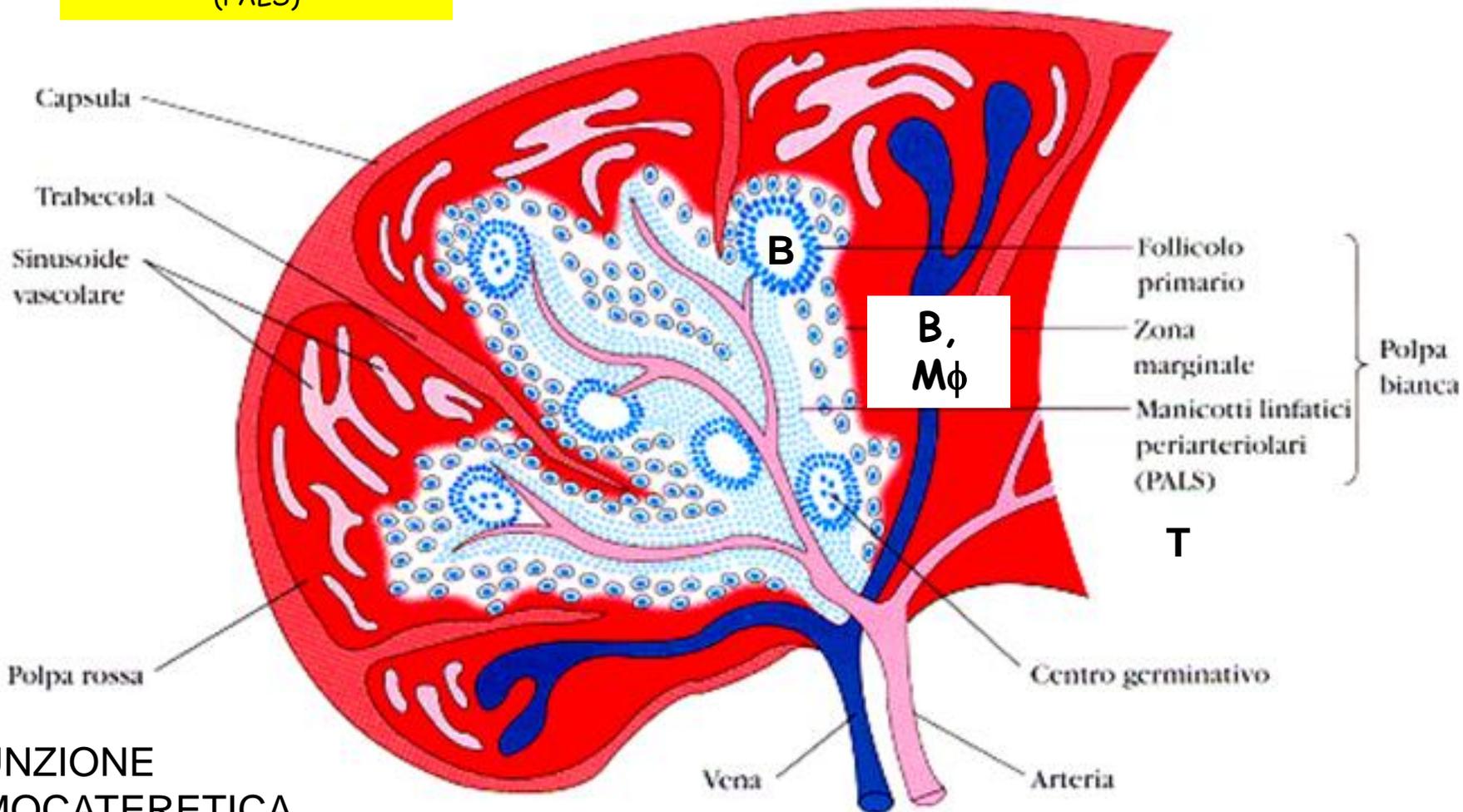
# MILZA

I linfociti B della zona marginale sono linfociti che rispondono principalmente a polisaccaridi e producono IgM.

(CD27<sup>+</sup> IgM<sup>HIGH</sup> IgD<sup>LOW</sup>)

Arteriole circondate da guaine di tessuto linfatico (PALS)

(b)



FUNZIONE  
EMOCATERETICA

# **SISTEMA IMMUNITARIO ASSOCIATO ALLE MUCOSE (MALT)**

Le superfici mucose del tratto gastrointestinale, respiratorio e urogenitale sono colonizzate da L e APC che promuovono le RI nei confronti degli Ag ingeriti e inalati

# CLASSIFICAZIONE DEL MALT

GALT (gut-associated lymphoid tissue).

BALT (bronchus-associated lymphoid tissue)

NALT (nasal-associated lymphoid tissue)

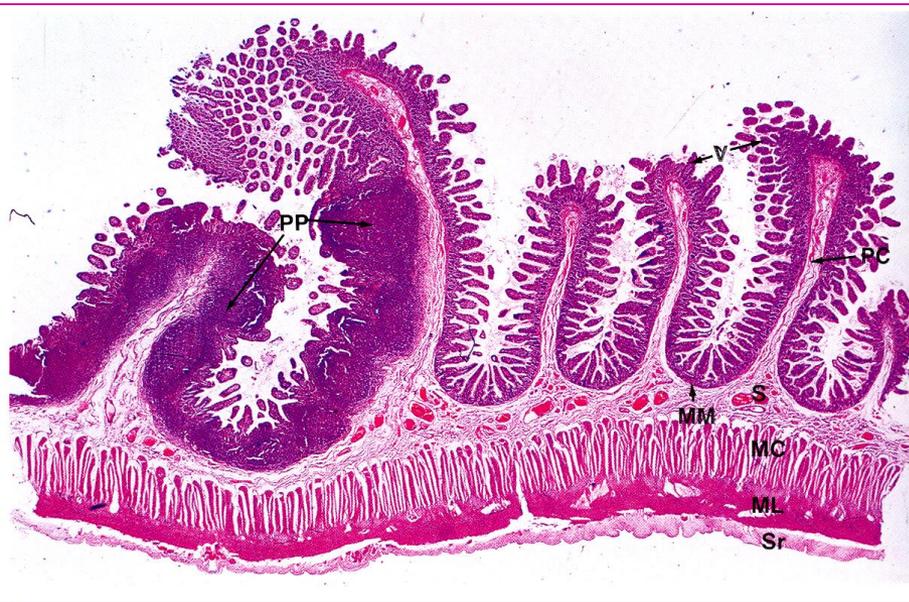
CALT (conjunctival-associated lymphoid tissue)

LALT (larynx-associated lymphoid tissue)

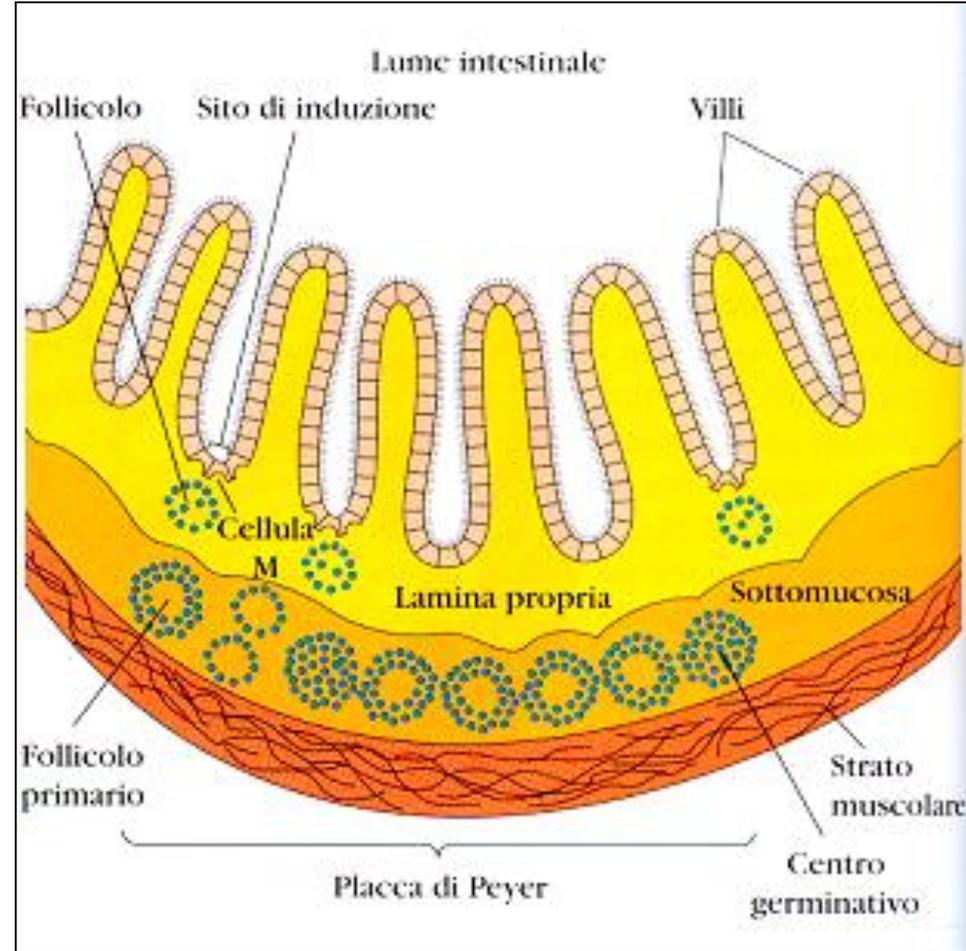
SALT (skin-associated lymphoid tissue)

VALT (vulvo-vaginal-associated lymphoid tissue)

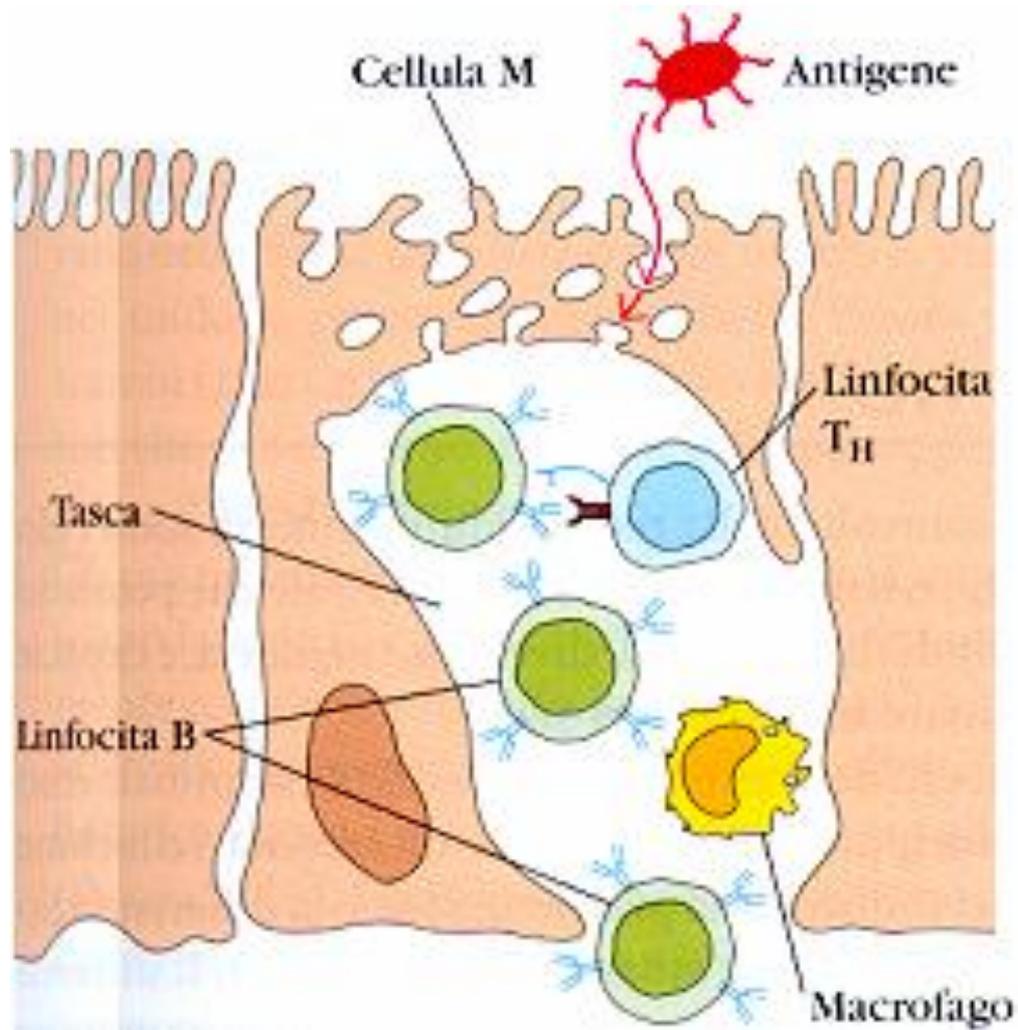
# Placche del Peyer



lamina propria dell' intestino tenue

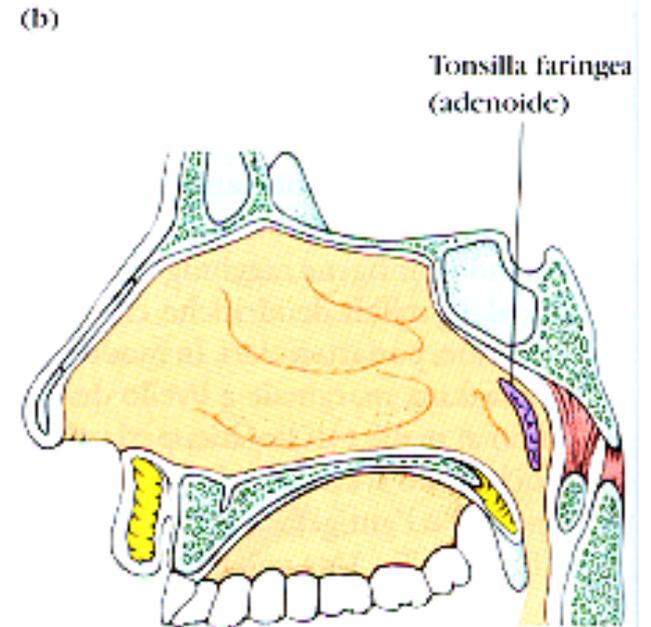
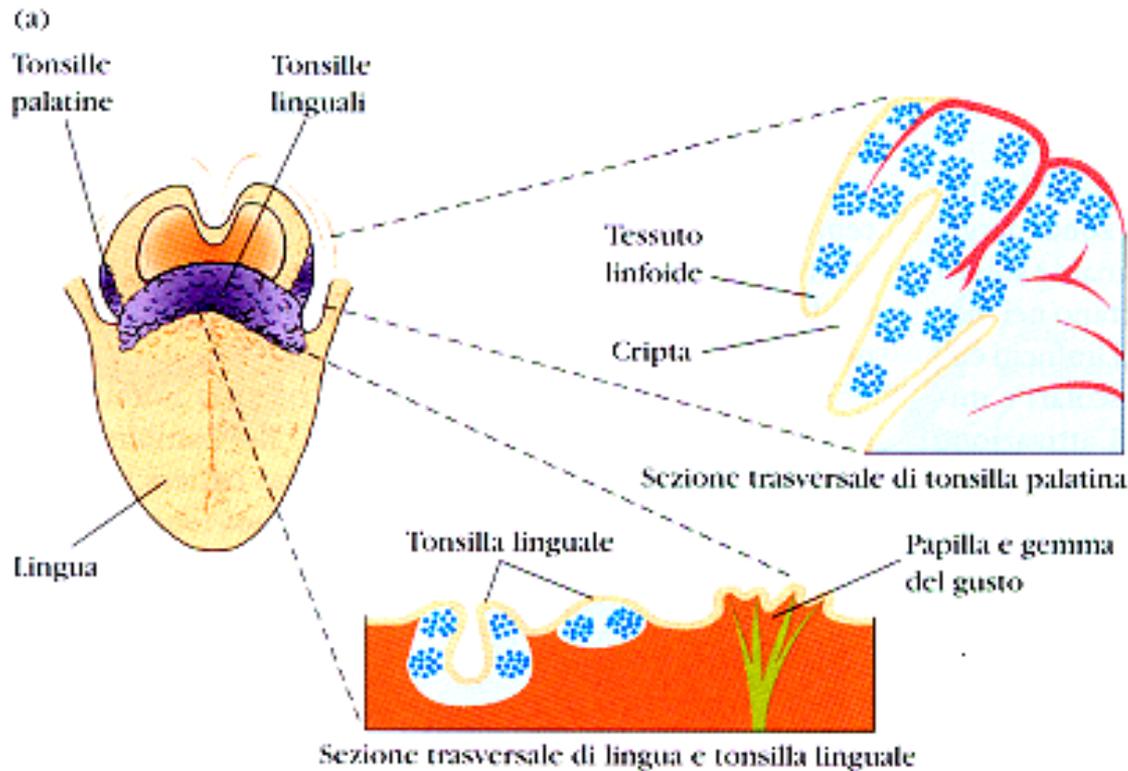


# La cellula M



Hanno attività pinocitica

# Le tonsille



# Istologia delle tonsille



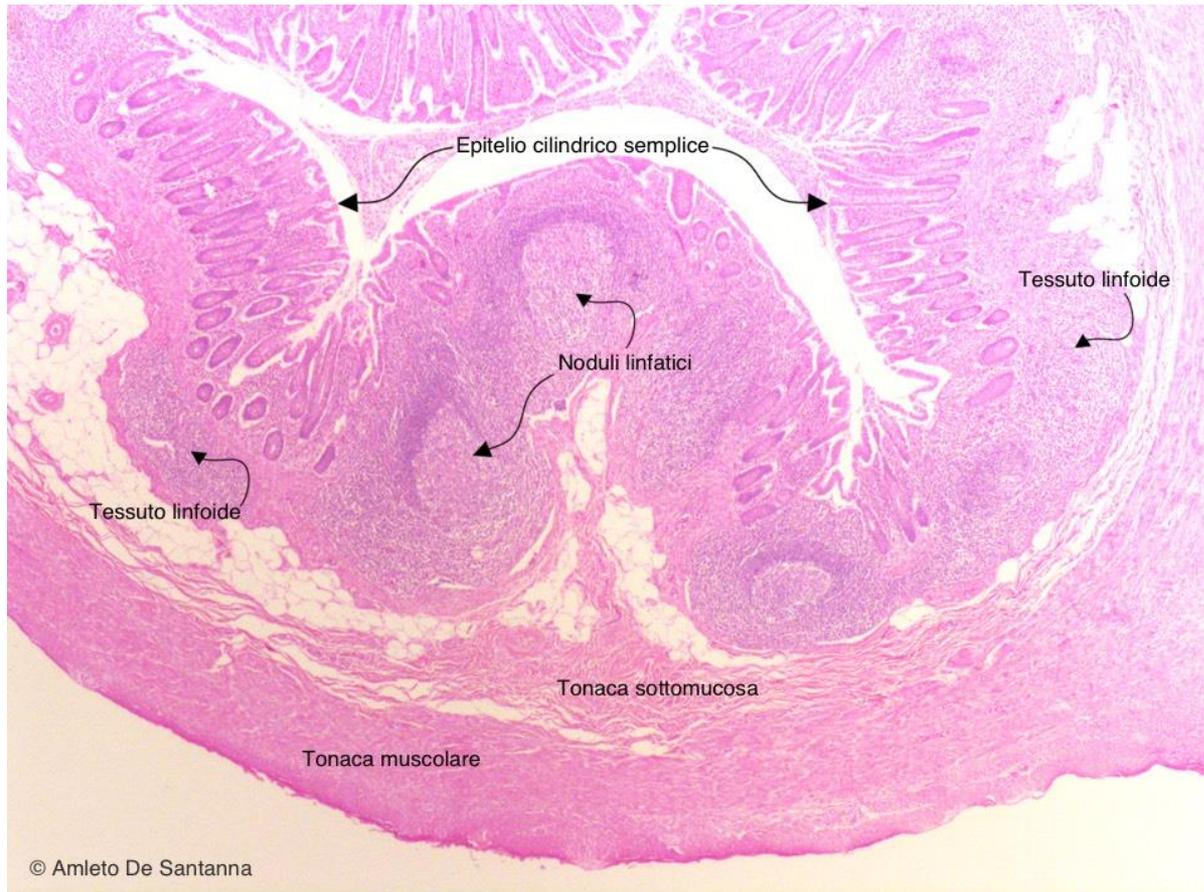
Tonsilla palatina



Tonsilla linguale

# L'appendice vermiforme: "tonsilla addominale"

- è costituita da tessuto linfatico



# SI cutaneo

