

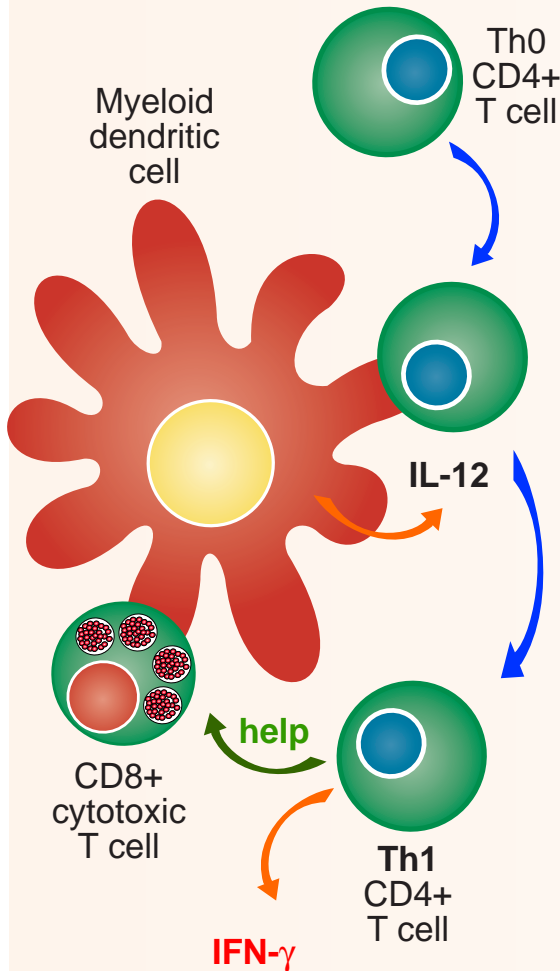
CD4+ T cell subsets and the balance of pro- and anti-inflammatory immune responses.

- ① *Th1 subset*
- ② *Th17 subset*
- ③ *Treg subset*
- ④ *Th2 subset*
- ⑤ *Balance of pro- and anti-inflammatory immune responses.*



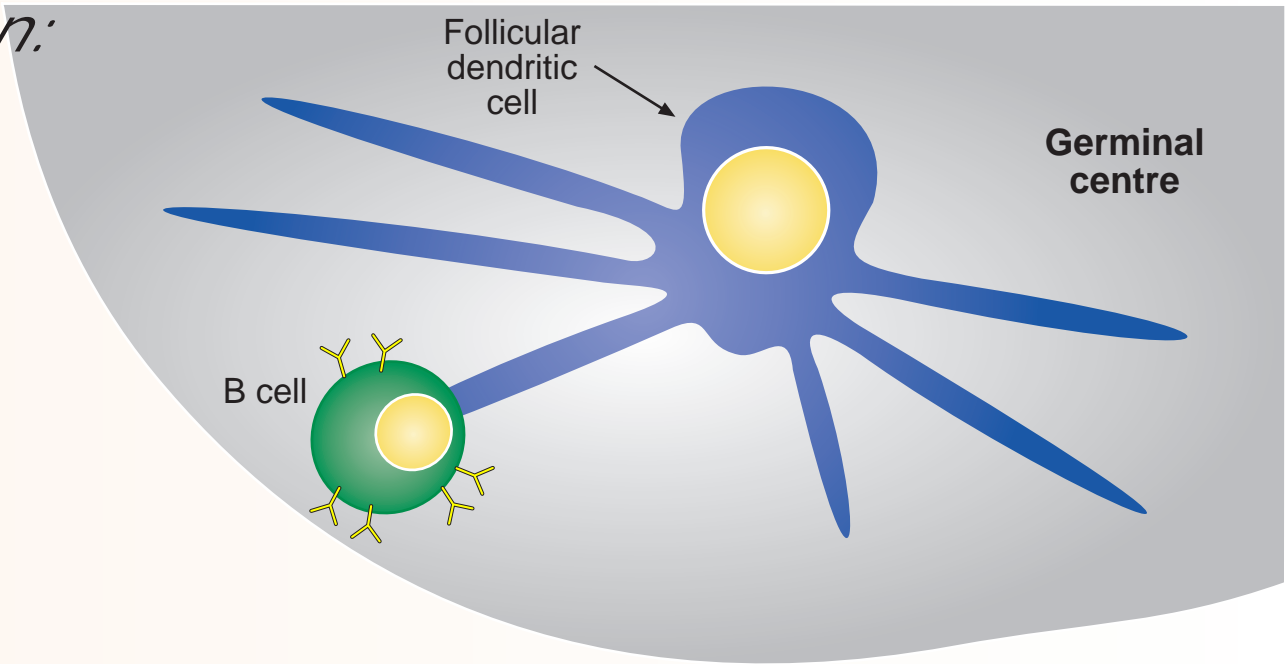
CD4+ T cell differentiation:

① Th1 subset



Pro-inflammatory response

T cell zone



PREVIOUS

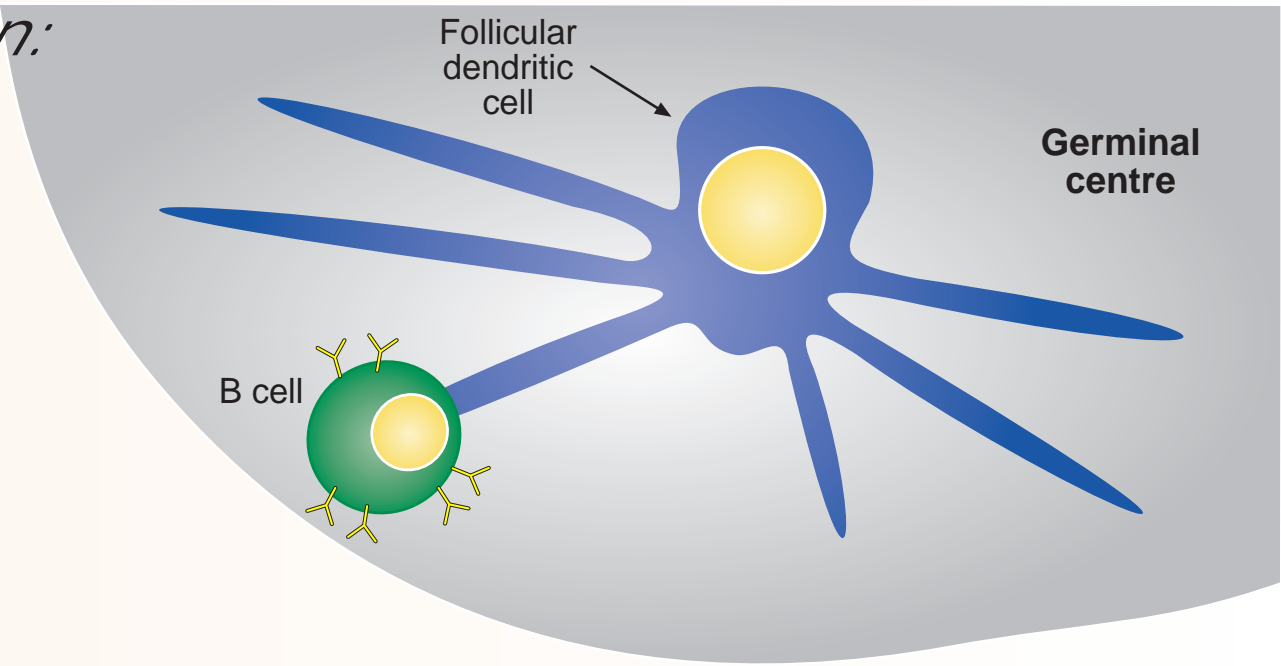
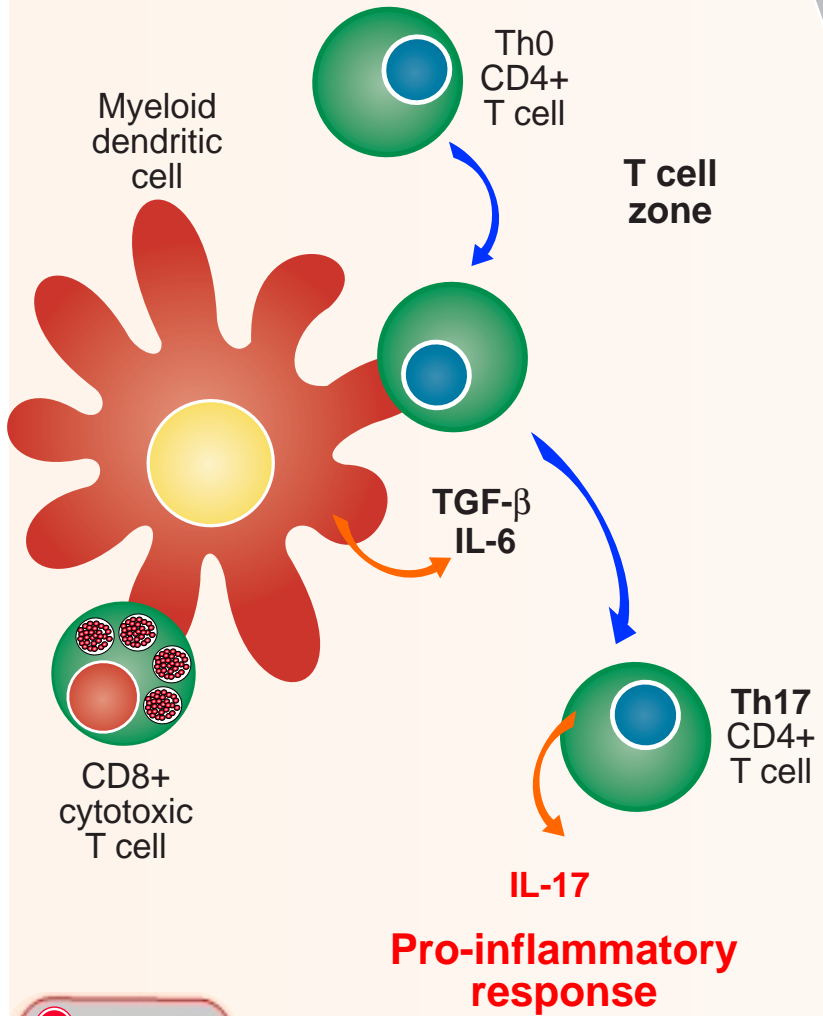
NEXT

Naive CD4+ T cells (Th0) interact with dendritic cells in the T cell zone of secondary lymphoid organs. Depending on the type of cytokine stimulation by dendritic cells, Th0 T cells can differentiate into Th1, Th2, Th17 or Treg phenotypes. IL-12 production by dendritic cells stimulates Th0 T cells to differentiate into T cells with a Th1 phenotype. These cells secrete IFN- γ which promotes pro-inflammatory immune responses. Th1 T cells also provide cytokine stimulation to promote the maturation of CD8+ cytotoxic T cells.



CD4+ T cell differentiation:

② Th17 subset



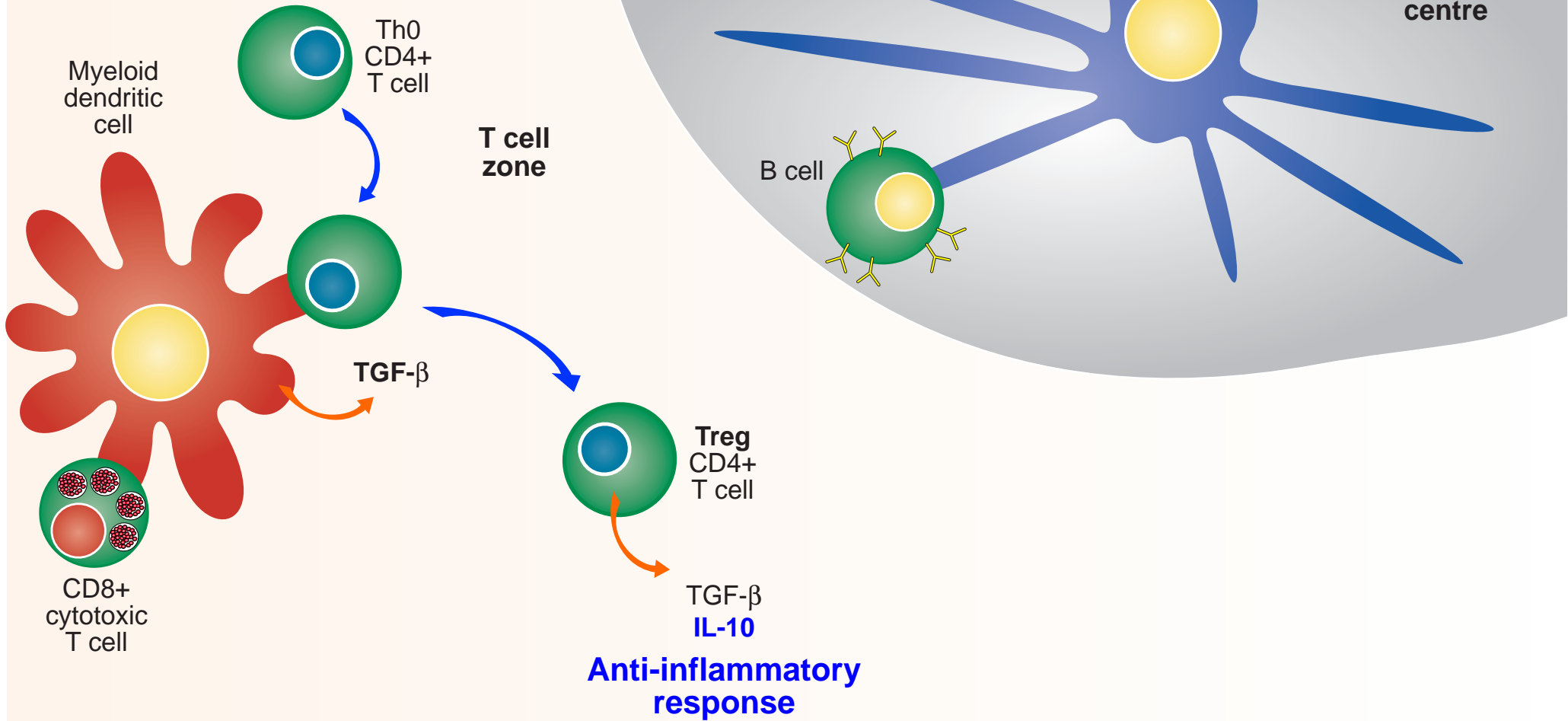
PREVIOUS

NEXT

Naive CD4+ T cells (Th0) interact with dendritic cells in the T cell zone of secondary lymphoid organs. Depending on the type of cytokine stimulation by dendritic cells, Th0 T cells can differentiate into Th1, Th2, Th17 or Treg phenotypes. TGF-β and IL-6 production by dendritic cells stimulates Th0 T cells to differentiate into T cells with a Th17 phenotype. These cells secrete IL-17 which promotes pro-inflammatory immune responses.

CD4+ T cell differentiation:

③ Treg subset



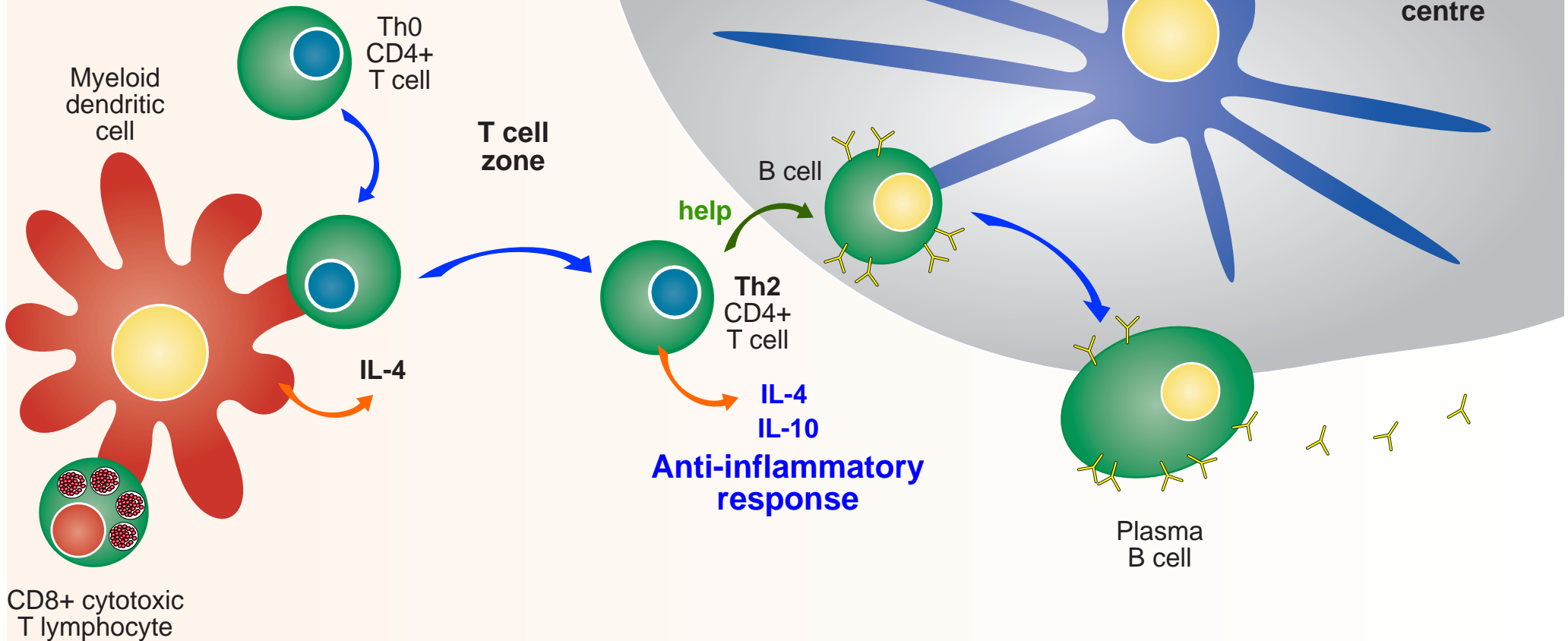
PREVIOUS

NEXT

Naive CD4+ T cells (Th0) interact with dendritic cells in the T cell zone of secondary lymphoid organs. Depending on the type of cytokine stimulation by dendritic cells, Th0 T cells can differentiate into Th1, Th2, Th17 or Treg phenotypes. TGF-β production by dendritic cells stimulates Th0 T cells to differentiate into T cells with a Treg phenotype. These cells secrete IL-10 and TGF-β. IL-10 antagonises pro-inflammatory immune responses by suppressing Th1 and Th17 T cell development.

CD4+ T cell differentiation:

④ Th2 subset

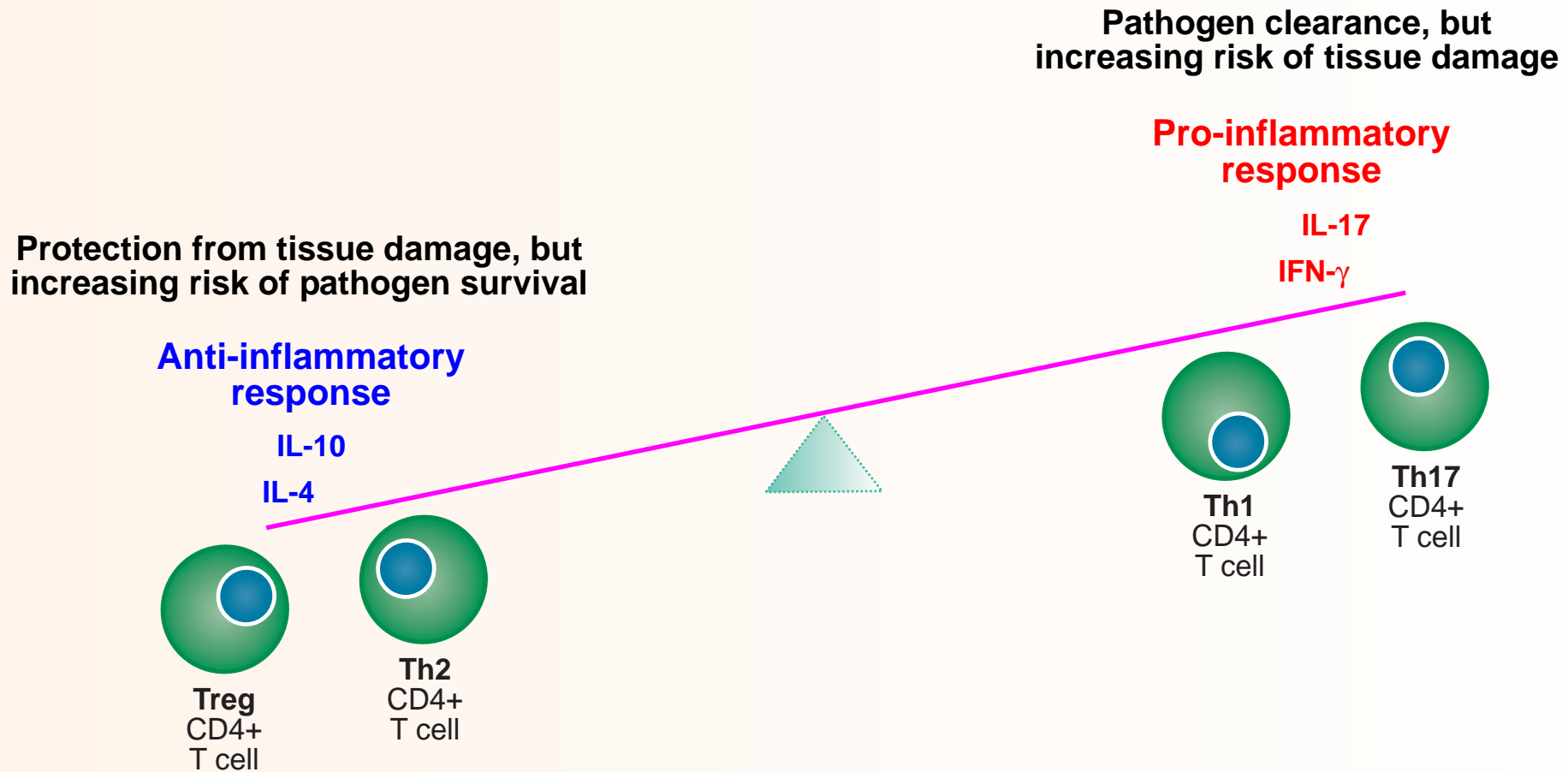


PREVIOUS

NEXT

Naive CD4+ T cells (Th0) interact with dendritic cells in the T cell zone of secondary lymphoid organs. Depending on the type of cytokine stimulation by dendritic cells, Th0 T cells can differentiate into Th1, Th2, Th17 or Treg phenotypes. IL-4 production by dendritic cells stimulates Th0 T cells to differentiate into T cells with a Th2 phenotype. These cells secrete IL-4 and IL-10 which antagonise pro-inflammatory responses by suppressing Th1 and Th17 T cell development. Th2 T cells also provide cytokine stimulation to promote the maturation of B lymphocytes.

⑤ *Balance of pro- and anti-inflammatory immune responses.*



PREVIOUS

BACK

In adaptive immune responses to pathogens, there is a critical balance between pro- and anti-inflammatory immune responses. Uncontrolled pro-inflammatory immune responses can result in damage to host tissues, whereas anti-inflammatory immune responses initiated prematurely can result in survival of the pathogen.

