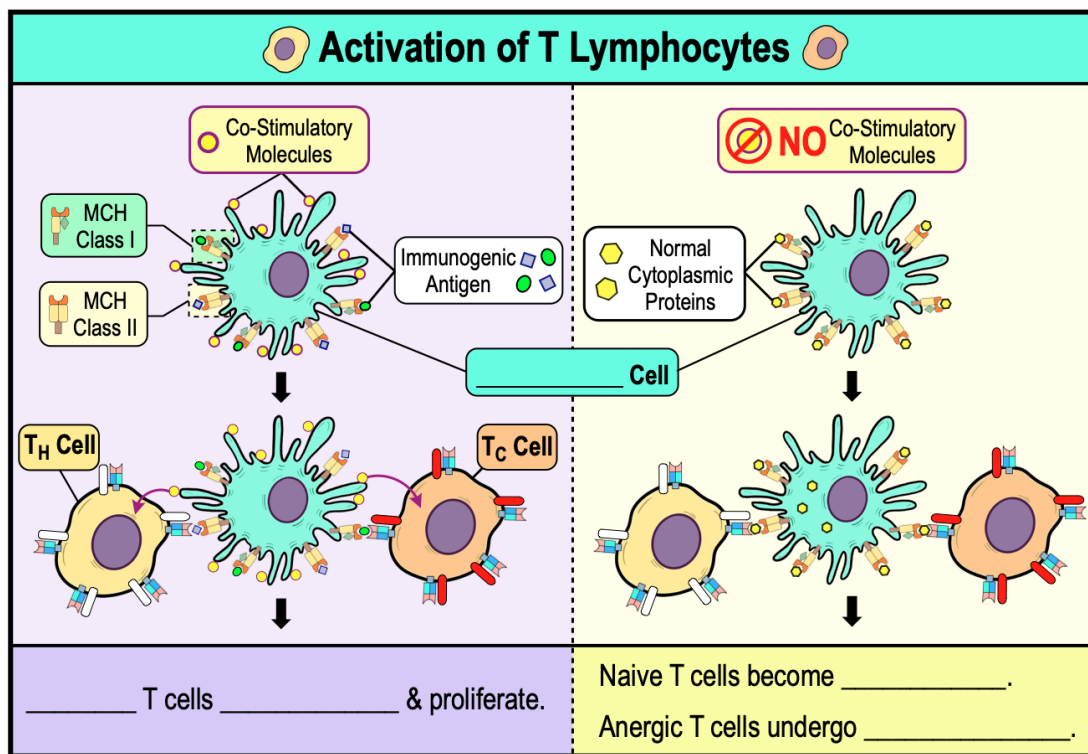


## CONCEPT: ACTIVATION OF T LYMPHOCYTES

- *Recall:* APCs, such as dendritic cells, have \_\_\_\_\_ MHC class I & II and can activate either a naive  $T_C$  or  $T_H$  cells.
  - Activated T cells proliferate & differentiate into either *effector* T cells or *memory* T cells.
- If a dendritic cell presents a \_\_\_\_\_ antigen on an MHC, it will produce *co-stimulatory molecules* on its surface.
  - \_\_\_\_\_-**stimulatory molecules**: communicate the *danger/significance* of an antigen to the naive T cell.
  - Naive T cells are only activated by dendritic cells that present *harmful* antigens & co-stimulatory molecules.
- If a dendritic cell presents a \_\_\_\_\_ antigen on an MHC, it will \_\_\_\_\_ produce *co-stimulatory molecules*.
  - If co-stimulatory molecules are NOT produced, the naive T cell is NOT activated & becomes \_\_\_\_\_.
  - **Anergic**: when a cell becomes \_\_\_\_\_-responsive & undergoes apoptosis (no response to *harmless* antigens).



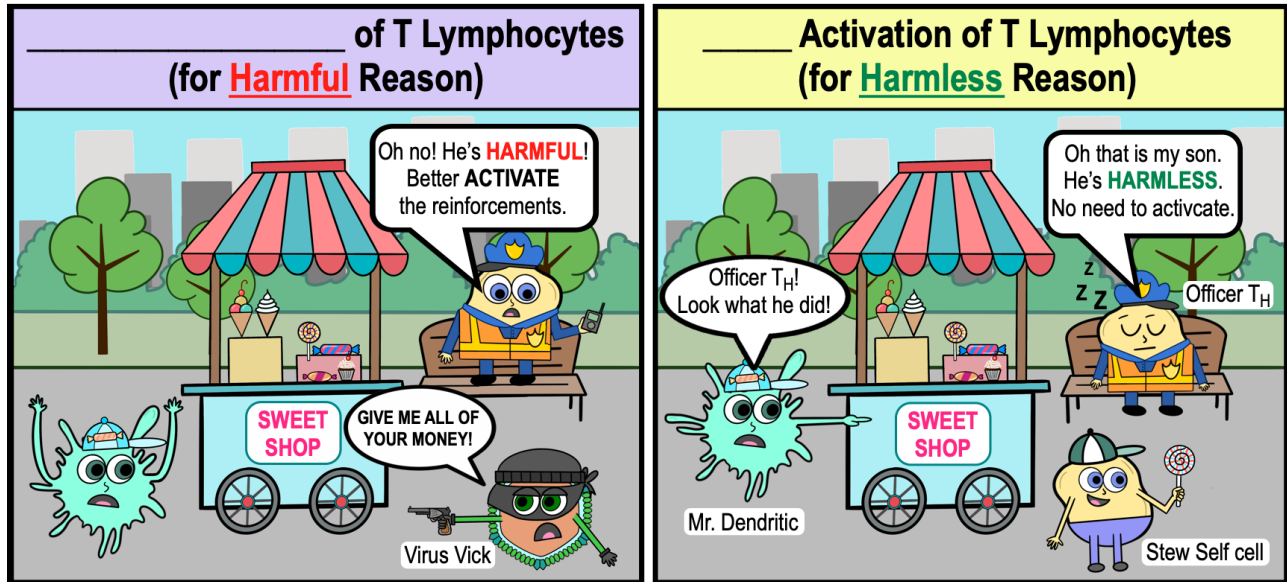
**PRACTICE:** Antigen presenting cells, including dendritic cells in lymph nodes, are observed to bind T cells on their surfaces. If the dendritic cell is presenting harmful antigens on its surface and creating co-stimulatory molecules, what will happen to the T cells that bind to the dendritic cell?

- The naive T cells that bind the dendritic cell will activate and form effector T cells.
- The cytotoxic T cells which bind the dendritic cell will signal the dendritic cell to undergo apoptosis.
- The anergic T cells which bind the dendritic cell will undergo apoptosis.
- The helper T cells that bind the dendritic cell will deactivate and become naive T cells.

## CONCEPT: ACTIVATION OF T LYMPHOCYTES

### Comic Strip for T Cell Activation

- Here is a fun way to remember when T cells become activated by \_\_\_\_\_ cells.



**PRACTICE:** The role of dendritic cells is to:

- Activate B cells via antigen presentation.
- Present antigens on MHC I only.
- Activate the complement system classical pathway.
- Perform phagocytosis.
- Activate T helper & T cytotoxic cells via MHC I & II.

**PRACTICE:** Before T cells become activated, they require an antigen encounter. Naive T cells are shown to express L-selectin which aids in binding to high endothelial cells expressing L-selectin ligand in regions where they are most likely to encounter an antigen. In which of the following locations are these high endothelial cells most likely to be located?

- Bone marrow.
- Capillaries.
- Lymph nodes.
- Heart.