

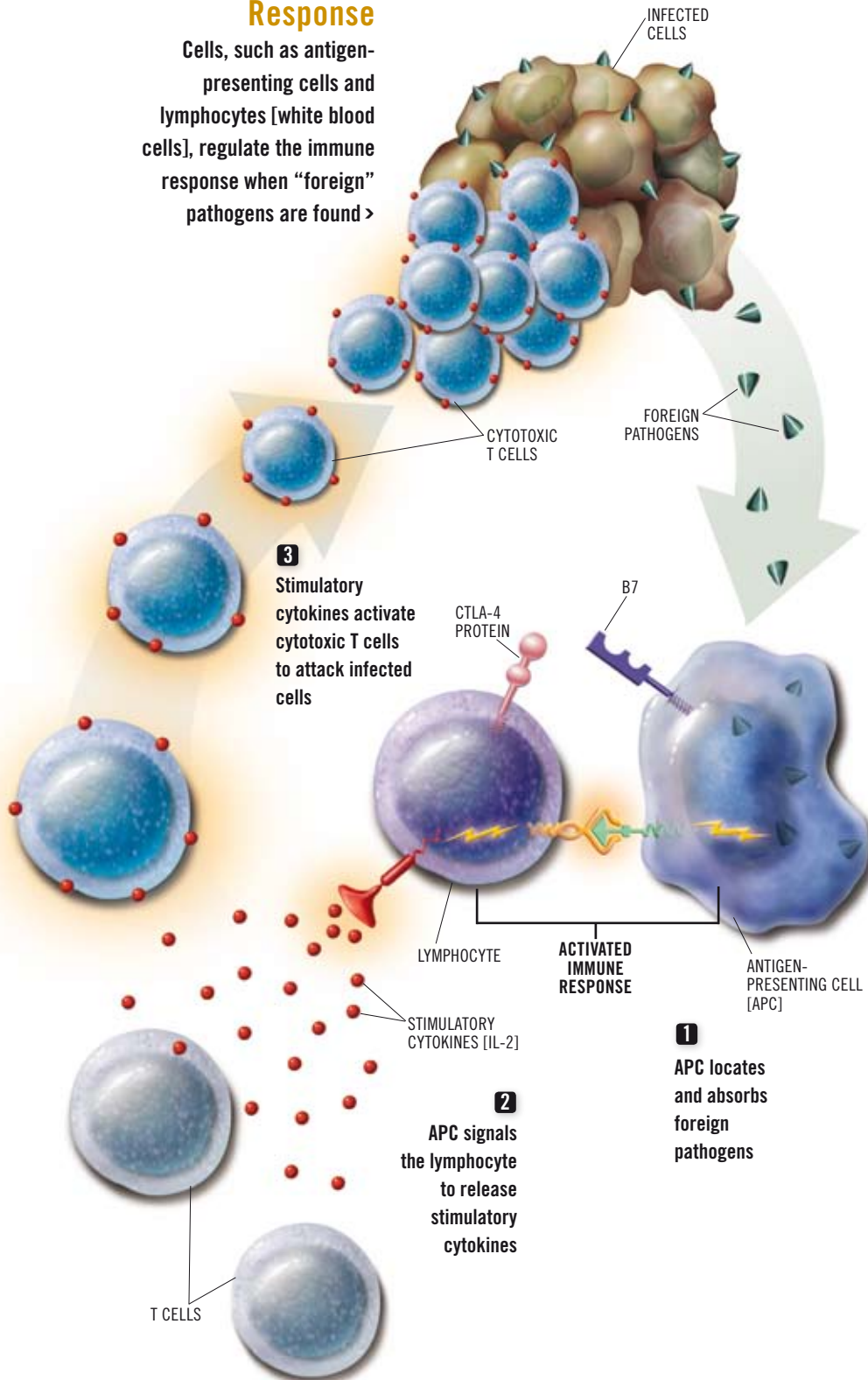


# Revving the Immune System to Fight Melanoma

THE IMMUNE SYSTEM doesn't naturally attack melanoma cells because: 1) it recognizes cancer cells as "self" cells, and 2) cancer cells release a substance that suppresses the immune response. Immunotherapy is a type of treatment that breaks the immune system's tolerance of cancer cells through stimulation of key immune cells and proteins.

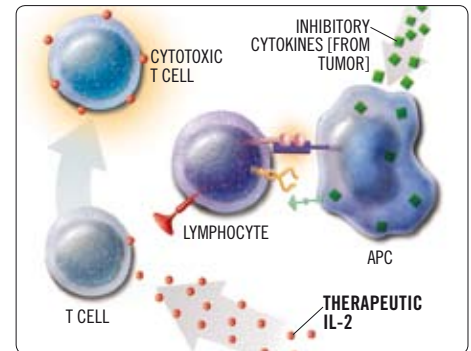
## Normal Immune Response

Cells, such as antigen-presenting cells and lymphocytes [white blood cells], regulate the immune response when "foreign" pathogens are found >

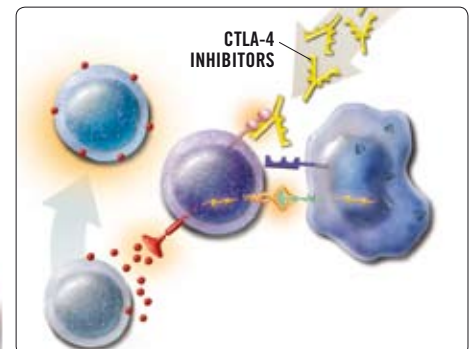


## Immunotherapy

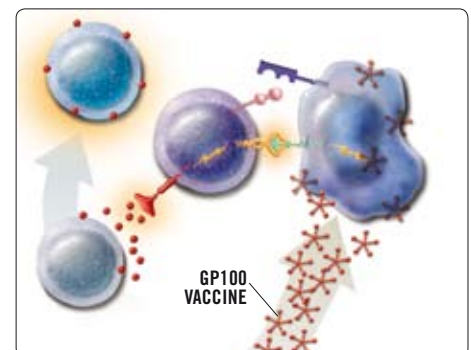
Below are three ways to stimulate the body's natural immune response against cancer >



**Interleukin-2:** Cancer cells evade the immune response by releasing inhibitory cytokines that suppress the immune system. IL-2, a stimulatory cytokine, is used as therapy to override the inhibitory cytokines and activate cytotoxic T cells, which seek out and destroy the tumor.



**CTLA-4 Inhibitors:** CTLA-4 is a protein that normally interacts with B7 on the APC to stop the immune response. Ipilimumab and tremelimumab are antibodies that block the binding of CTLA-4 to B7, causing the body's natural defenses to stay elevated and the immune system to continue attacking tumor cells.



**Vaccines:** By incorporating gp100, a protein commonly found on melanoma cells, into the APC, the vaccine stimulates an immune response specifically against cancer cells that express gp100.