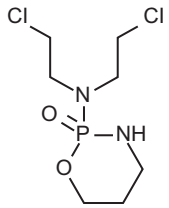
the goal of increasing immune response against cancer (74). In order to reduce the activity of Tregs, the anti-GITR antibody needs to be an agonistic antibody (it must not be a blocking antibody). Agonistic anti-GITR antibody has proven effective in various animal models of cancer (75). In addition to cancer, another vexing problem is chronic infections, such as parasitic infections. Agonistic anti-GITR antibody has also been shown to be effective against parasitic infections (76,77).

Cyclophosphamide, a drug commonly used against cancer, inhibits Tregs (78). Tregs act as a brake against the immune system, reducing immune response against self-antigens. Hence, Tregs are important for preventing indiscriminate, pathological inflammation of all organs of the body. Tregs also may reduce immune response against tumor antigens and infecting agents and, in this context, Treg activity may be undesired.

The mechanisms of cyclophosphamide include eliminating Tregs, enhancing expansion of antigen-specific T cells, inducing survival factors for T cells (type I interferon; IL-7; IL-15), and activating dendritic cells (79). The structure of cyclophosphamide is shown below.



VII. IMMUNOLOGY CAN BE ORGANIZED AS PAIRS OF CONCEPTS

Many concepts in the field of immunology occur as pairs, as listed below. For example, dendritic cells (DCs) occur as two lineages, the myeloid DCs and plasmacytoid DCs. Many immune cells, such as DCs and T cells, can assume two different cytokine

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