lipopeptides that suppress the proliferation of lymphocytes in the murine allogeneic mixed lymphocyte response assay. Triptolide from the plant *Tripterygium winfordii* demonstrates immunosuppressant activity through the inhibition of IL-2 receptor expression and signal transduction. The novel heteroaromatic compound lymphostin, obtained from *Streptomyces* KY11783 has demonstrated immunosuppressant activity through its potent inhibition of the lymphocyte kinase $p56^{lck}$. Over the last decade, research activities on immunosuppressants of natural product origin have focused on the mechanisms of inhibition of T-cell activation and proliferation. This approach has been fruitful, leading to the generation of significant information about signaling pathways between T cells, greater detail about the roles of T cells in immune function, and the discovery of Tacrolimus (Prograf) from the soil fungus *Streptomyces tsukubaensis*. As immunological research progresses, increasingly more potential targets will be elucidated for immunomodulatory therapeutic intervention. Natural products will undoubtedly provide a sound platform for the delivery of natural-product-based therapeutic agent candidates.

Natural-products-based anticancer drug discovery continues to be an active area of research throughout the world [34, 102, 112, 147]. While cancer incidences and the frequencies of types of cancer may vary from country to country, the most common sites for the development of neoplasia are generally considered to be the breast, colon/rectum, prostate, cervix/uterus, esophagus/stomach, pancreas, liver, lung, urinary bladder, kidney, ovary, oral cavity, and blood (leukemia and non-Hodgkin lymphoma) [147]. Currently, the chemotherapeutic management of these tumors involves a variety of different plant-based chemicals that are either currently in use or in clinical trials and include such drug classes as the vinca alkaloids, lignans, taxanes, stilbenes, flavones, cephalotaxanes, camptothecins, and taxanes. Despite the wide range of organ structure, type, and function, great similarities exist between the organs with regard to the pathogenesis of cancer. As more and more details of the molecular biology of cancer are revealed, more targets will present themselves for possible therapeutic chemical intervention in the growth and development of neoplasms. A somewhat new approach is that of cancer chemoprevention, where chemoprevention is defined as the prevention, delay, or reversal of carcinogenesis [112]. A few of the more promising cancer chemopreventive agents are (compound, plant source, target): brusatol, *Brucea javanica*, differentiation; zapotin, *Casimiroa edulis*, differentiation and apoptosis; apigenin, *Mezoneuron cacullatum*, antimutagenesis; deguelin, *Mundelea sericea*, inhibitor of ornithine decarboxylase; brassinin, *Brassica* spp., inducer of quinine reductase; and resveratrol, *Cassia quinquangulata*, cyclooxygenase inhibitor. A final note with regard to this approach is that it is important to appreciate that the distinction between chemopreventive agent and chemotherapeutic agent can become quite blurred.

A recurrent theme in neoplasia is the alteration of cell cycle control. One therapeutic approach to the treatment of neoplasia is the development of a treatment that would return to normal the altered cell cycle [143]. Cyclin-