

Symposium

The Memorial Sloan-Kettering Cancer Center - Center for the study of botanical immunomodulators

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The MSKCC Research Center for Botanical Immunomodulators was established in the Spring of 2005 to systematically investigate immune-modulating botanical supplements and translate findings into clinical applications. We use a multidisciplinary approach, bringing together leading scientists in laboratory and clinical immunology, oncology, infectious diseases, botanical, organic chemistry, and complementary medicine in two cores and four projects. The Center has accomplished the following, which are in line with the planned timeline.

The Administrative Core has organized regular Internal Steering Committee meetings to discuss the science of the presented projects, exchange viewpoints and to clarify procedures. An External Advisory Board was formed to oversee scientific and administrative issues of the center. The Pilot Research Program was launched to solicit research proposals among MSKCC investigators. One project was selected among 6 applicants. The pilot research project has produced interesting data showing specific suppression by *Echinacea* extract of T-cell mediated responses to viral antigen. As part of the Training and Career Development Program, we have submitted and succeeded in obtaining a T32 institutional training grant from the National Institute of Health to train physician-scientist engaged in Integrative Oncology research. The core also provides pharmacy support, which secured the supply of core botanical study agents. A database was established to document and tracks the sources and significant findings of each botanical study agent.

The Botanical Research Resource Core has developed standard operating procedures governing the acquisition, processing and shipping of botanical study agents; acquired and extracted botanical study agents, including *Astragalus*, *Coriolus versicolor*, and Turmeric; standardized the extraction approach for future botanical study products; conducted quality assurance assays of the study agents; developed plans to voucher study specimens at the Hong Kong Herbarium; conducted literature reviews of Chinese herbs reported to have immunomodulating effects and also assembled the data on botanical extracts shown to have possible anticancer effects.

The Botanical Research Center is also comprised of 4 research projects. Project 1 investigates the regulation of the immune response to vaccines by botanicals. Several botanicals have been tested and shown to have immuno-adjuvant activity. Project 2 explores the role of botanicals in modulating antibody-mediated tumor cytotoxicity in clinically relevant tumor models. The experimental models have been refined and validated. Project 3 researches the impact of botanicals on the immune response to infectious micro-organisms. Turmeric preparations have showed to enhance murine resistance against systemic infection with *Mycobacterium bovis* BCG and *Listeria monocytogenes*. Project 4 tests the effects of selected botanicals on human biomarkers. Turmeric has been shown to suppress human dendritic cell maturation. These findings have helped us to define the research direction more clearly and have led to new ideas of future research.