



## **The Effect of Sambucol on the Immune System (Cytokines Production)**

Vivian Barak and Madeleine Mumcuoglu. Israeli Cytokine Standardization Laboratory, Hadassah – Hebrew University Medical Center, Jerusalem, Israel.

**Natural remedies, including *Sambucus nigra*, were show *in vitro* and *in vivo* to have activating effects on the immune system and to possess antiviral properties, as published in former studies. Sambucol products...based on a standardized black elderberry (*Sambucus nigra* L.) extract, were studied in comparison to two other natural products (Protec and Chizukit N) containing Propolis and Echinacea. Those five herbal remedies, which are sold as food additives and believed to have immune enhancing properties, have been evaluated for their effects to stimulate production of cytokines – one of the main components of the immune system activation...Sambucol formulations demonstrated activation of the healthy immune system by increasing inflammatory and anti-inflammatory cytokines production, while the effect of Protec and Chizukit N is much less. Sambucol could therefore have immune-stimulatory properties when administered to patient suffering from influenza or immune depressed cancer / AIDS patients, in conjunction with chemotherapeutic or other treatments.**

Sambucol is one of the oldest, and most researched, commercially produced line of European elderberry products. This *in vitro* study demonstrated elderberry's positive effects in stimulating immune response in human lymphocytes at all kinds, including innate and adaptive classes. It improves immune response pathways to T-helper cells, apparently balancing the body's response to infectious agents. The researchers mentioned unpublished findings suggesting elderberry demonstrated very positive aid in cancer treatment by enhancing/activating both immune-protectors and immune-stimulators in conjunction with chemotherapy. Propolis and Echinacea disappointed in most cases stimulating only one type of cytokine.