



# HerbClip™

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**FILE: ■Shi-Bi-Lin  
■Allergic Rhinitis**

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**RE: Study Examines Effectiveness of Chinese Herbal Formula in Modulating Mast-cell-mediated Hypersensitivity in Allergy**

Zhao Y, van Hasselt C, Woo J, Chen G, Wong Y, Wang L, et al. Effects of a Chinese herbal formula Shi-Bi-Lin on cytokine release from the human mast cell line. *Ann Allergy Asthma Immunol.* 2005;95:79-85.

Allergic rhinitis is a common condition characterized by sneezing, nasal congestion as well as watery discharge, and itchy nose and eyes. Some, but not all, people with allergic rhinitis may also experience headaches, fatigue, and decreased quality of life with negative impacts on their social and professional activities. An estimated 20% of the population experience allergic rhinitis.<sup>1</sup> Allergic rhinitis is characterized as persistent or intermittent, and is caused by exposure to allergens, typically pollen. Once the allergen is inhaled and attaches to nasal mucosa (lining of the nasal passages), it stimulates the activity of mast cells, which release cytokines (chemical signals) that create allergic rhinitis symptoms.

Shi-Bi-Lin (SBL) is a traditional Chinese herbal formula that has been used for centuries to treat allergic diseases. It is composed of six herbs: 7.5 g Fructus Xanthii, 20 g Radix Angelicae Dahuricae, 7.5 g Radix Saposhnikoviae, 15 g Flos Magnoliae, 5 g Radix Gentianae, and 5 g Herba Verbenae. All herbs were purchased from Anguo MeiWei Herb Co. Ltd. (Anguo City, Hebei Province, People's Republic of China). The in vitro study examined the production of cytokines by human mast cells (HMC-1) exposed to extracts of the SBL formula. According to the authors, "Extracts of SBL were prepared by decocting the dried prescription of the herbs with boiling distilled water for 3 hours," then condensed and freeze-dried (methods further described in the study). The final concentration was 100 mg extract per mL solution.

HMC-1 cells ( $1 \times 10^6$  cells per well) were preincubated with 0.2, 0.1, or 0.05 ng/mL (nanograms per milliliter) SBL extract (SBLE) for one hour before being stimulated for 6, 12, and 24 hours by phorbol myristate acetate (PMA) plus calcium ionophore A23187. PMA plus A23187 stimulate mast cell cytokine production. As a control, HMC-1 cells were treated with PMA and A23187 without being preincubated with SBLE. After stimulation,

the cultures were tested for mast cell production of interleukin 4 (IL-4), IL-6, IL-8, and tumor necrosis factor  $\alpha$  (TNF- $\alpha$ ). IL-4, IL-6, and TNF- $\alpha$  are known as the "inflammatory triad," since they stimulate inflammation. Interleukins are cell signals that stimulate the activity of other immune cells and affect the permeability of blood vessels, which can cause the symptoms of watery nose and eyes associated with allergic rhinitis. The experiment was repeated 3 times.

SBLE significantly reduced cytokine production by HMC-1 cells. IL-4 production was significantly inhibited by 0.05 and 0.2 mg/mL at 6 hours compared to control ( $P = 0.04$  and  $0.03$ , respectively), 0.2 mg/mL at 12 hours ( $P = 0.02$ ), and 0.05 and 0.2 mg/mL at 24 hours ( $P = 0.03$  and  $0.04$ , respectively). IL-6 release significantly increased by a SBLE concentration of 0.05 mg/mL at 6 hours ( $P = 0.01$ ), but significantly decreased by 0.2 mg/mL SBLE at 6 hours ( $P = 0.049$ ), and at 0.05 and 0.2 mg/mL SBLE at 24 hours ( $P = 0.01$  and  $0.02$ , respectively). IL-8 was increased by 0.05 mg/mL SBLE at 6 hours ( $P = 0.03$ ), with no other effect detected at other concentrations of SBLE. TNF- $\alpha$  release was significantly inhibited by 0.2 mg/mL SBLE at 6 hours ( $P = 0.04$ ), by 0.05 and 0.2 mg/mL at 12 hours ( $P = 0.04$  and  $0.03$ , respectively), and at all concentrations at 24 hours ( $P < 0.01$  at 0.05 mg/mL SBLE, and  $P < 0.05$  at 0.1 and 0.2 mg/mL SBLE). The exact values for changes in cytokine release were not reported.

This study provides some evidence for the efficacy of SBLE, a Chinese formula used for centuries for allergic conditions, as well as helping explain its mechanism of action. Most research into the medicinal actions of herbs looks at only one plant or its extract, instead of a composite formula, as was tested in the current study. Composite formulas are more commonly used in clinical practice than are single herbs; thus, as the authors note, this research "is more relevant and practical." It is the case with many in vitro studies that the results are not applicable to human clinical trials. To answer the question of whether SBL decreases symptoms of allergic rhinitis in people, the same group that performed this research is currently conducting a multi-center, randomized, double-blind, placebo-controlled clinical trial of SBLE.

—John Neustadt, ND

## References

<sup>1</sup>Meltzer EO. The prevalence and medical and economic impact of allergic rhinitis in the United States. *J Allergy Clin Immunol.* Jun 1997;99(6 Pt 2):S805-828.

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