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Evaluation of the Effects of Active Fractions of Chinese Medicine Formulas on IL-1 β , IL-6, and TNF- α release from ANA-1 Murine Macrophages¹

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Abstract

Ethnopharmacological relevance: Yaotongning (YTN) is a traditional Chinese Medicine (TCM) that contains ten component medicinal materials (CMMs) and uses Chinese rice wine as a vehicle to enhance its efficacy. YTN has been used for rheumatoid arthritis (RA) treatment in China for decades and has been reported to have anti-inflammatory and analgesic effects, as well as to strengthen the immune system.

Aim of the study: The present work quantitatively evaluated the *in vitro* effects of active fractions from the ten CMMs that make up YTN and eight additional herbs commonly used in TCM formulas for RA treatment, as well as different combinations of these active fractions, on cellular immune responses; the findings were used to determine which active fractions are responsible for promoting an immune response, and to assess whether YTN is superior to other similar formulas and whether YTN can be improved by simplifying its formula from the point of its cellular immunomodulatory activity.

Materials and Methods: Using the YTN formulation principles and some concepts in combinatorial chemistry, twenty-seven TCM samples were designed by combining some or all of the active fractions of YTN and other eight herbs used for RA treatment. Release of interleukin-1 β (IL-1 β), interleukin-6 (IL-6), and tumor necrosis factor-alpha (TNF- α) from ANA-1 murine macrophages was measured using an

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