New findings: The anti-fibrotic mechanism of plant extract Cpd 861

April 30 2008

A team led by Dr. Xue-Hai Tan from the Beijing Genomics Institute has determined that the antifibrotic function of Chinese herbal extract Cpd 861 is mediated by both downregulating the synthesis of collagens and upregulating the degradation of collagens. This effect is evidently different from that of Western antifibrogenic drugs and could allow for the development of effective antifibrogenic drugs from Chinese medicinal herbs.

In human hepatic stellate cells, the key cells involved in both the synthesis and degradation of matrix proteins (mainly collagens) in the liver, the plant extract Cpd 861 can regulate the expression levels of collagen synthesis and degradation-related genes, thus demonstrating an antifibrotic effect.

This research, performed by Dr. Xue-Hai Tan and his colleagues at the Beijing Genomics Institute, was published on March 21, 2008, in the *World Journal of Gastroenterology*.

Hepatic fibrosis, which can lead to portal hypertension or cirrhosis, is a wound-healing response to chronic liver injuries due to a variety of insults. The altered balance between the synthesis and degradation of matrix proteins (mainly collagens) is the major pathogenic feature in the hepatic fibrosis process. Although remarkable progress has been made recently in understanding the mechanisms of hepatic fibrosis and while numerous agents have been studied, very few effective antifibrogenic drugs have been approved for use in humans.

Previous research has showed that Cpd 861, which was formulated by one the authors (Dr. Bao-En Wang) in accordance with traditional Chinese medical theory, can significantly improve the clinical manifestations and biochemical parameters of patients with hepatic fibrosis. Their recent work found that the antifibrotic function of Cpd 861 is mediated not only by inhibiting collagen synthesis (by downregulating collagen type III gene expression) but also by enhancing the degradation of collagens (by increasing the expression of matrix metalloproteinase-1, which is an enzyme that degrades collagens). These effects are different from those of Western antifibrogenic drugs (such as interferon- gamma).

The authors explain that the herbs used to prepare Cpd 861 have been used for thousands of years in Traditional Chinese Medicine, and the results of this research could allow for the development of effective antifibrogenic drugs from Chinese medicinal herbs.

Using human hepatic stellate cells and a real-time quantitative PCR method, this research was performed by physicians from the Beijing Genomics Institute, the Liver Research Center of the Beijing Friendship Hospital, and the Institute of Medicinal Plant Development of the Chinese Academy of Medical Sciences, China.

Further research should be done to explain the mechanism for Cpd 861's regulation of collagen-related gene expression and to identify the active antifibrotic ingredient in Cpd 861.

Source: World Journal of Gastroenterology