

The condition is typically remedied by exposing a baby to sunshine for a few minutes a day or, in severe cases, lamps that emit specific wavelengths of light. In China, however, babies are given Yin Zhi Huang, a tea made from Yin Chin (*Artemisia capillaris*), a relative of wormwood, and three other herbs. “Interestingly,” says David Moore, who led the current study, “wormwood is also used in Western traditional medicine for treating liver problems.”

Moore and colleagues decided to explore Yin Zhi Huang as a follow-up to earlier work in which they showed that a protein found in liver cells, constitutive androstane receptor (CAR), was activated by bilirubin and regulated its removal. Knowing that wormwood tea also boosted bilirubin clearance, the researchers guessed that an active ingredient in the herbal brew might also “switch on” the protein.

Their hunch proved correct. Yin Zhi Huang and a tea steeped from Yin Chin alone speeded bilirubin removal in normal mice, but not in mice genetically engineered to lack CAR. Furthermore, the researchers found that 6,7-dimethylesculetin, a component of both Yin Zhi Huang and Yin Chin acts on CAR and accelerates bilirubin clearance.

The discovery that the compound activates CAR may lead to new drugs that prevent or treat jaundice by specifically targeting the receptor protein. However, such pharmaceuticals will not necessarily be based on 6,7-dimethylesculetin. “It’s not the world’s greatest CAR activator,” says Moore.

Moore suspects that CAR and its relatives in the nuclear receptor superfamily are the targets of active agents in many natural products and herbal medicines, which are biologically active but whose mechanisms are unknown.

However, studies that look to herbal remedies for clues to modern pharmaceuticals are rare. “Despite the fact that years ago all medicines came from plants and natural products, there has been a dramatic change over the last 100 years in the way we discover new medicines,” says Moore. “I’d say the dominant theme these days is definitely not searching natural products.”

While herbal remedies provide a medley of compounds thought to restore a holistic “balance” to the body, Western pharmaceutical products are increasingly based on purified molecules

that act on specific biological targets. In addition, “purified compounds extracted from herbal remedies have a 90% failure rate in clinical trials,” says Xiaorui Zhang, Coordinator of WHO’s Traditional Medicine programme. “The synergistic effect between the different chemicals in a plant or plants has to be taken into consideration.”

However, WHO actively encourages research on the traditional use of herbal medicines, especially those that alleviate symptoms of diseases, such as malaria and AIDS. It has also developed guidelines for the clinical testing of traditional therapies and sponsors several centres worldwide that are compiling a database, in English, of information on natural medicines.

None the less, with the annual global market for herbal remedies estimated to be around US\$ 23 billion and growing, many scientists think studies like those conducted at the Baylor laboratory help bridge the gap between traditional and Western-style medicine. “For mechanism-based scientists and physicians ... it is both satisfying and reassuring when a single component of a herbal remedy turns out to function via a defined mechanism,” notes Mitchell Lazar of the University of Pennsylvania School of Medicine in a commentary that accompanied Moore’s report. “This is a wonderful example of knowledge gained by applying the Western scientific method to an Eastern herbal remedy.” ■

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Science meets tradition and identifies herbal treatment for jaundice

Researchers at the Baylor College of Medicine in Houston, Texas, have shed light on how a Chinese herbal tea used for centuries to treat neonatal jaundice works (*Journal of Clinical Investigation* 2004;113:23-5). The finding could lead to new drugs for the ailment in infants as well as adults.

Characterized by yellow-tinged skin and eyes, jaundice is the build-up of bilirubin, a yellow-red pigment formed and released into the bloodstream during the natural breakdown of red blood cells in the liver. According to the American Academy of Pediatrics, more than half of all infants in the US develop the condition during their first week of life, most often because they have immature livers and a surplus of red blood cells.