



## Current research and development of integrated traditional Chinese and Western Medicine in gastroenterology

Ke-Ji Chen

Ke-Ji Chen, Xiyuan Hospital, China Academy of Traditional Chinese Medicine, Beijing 100091, China

Ke-Ji Chen, Professor in integrated Traditional Chinese and Western medicines, especially Qing Royal medicine and anti-ageing herbal medicines having 100 papers published with several China national/Ministry of Public Health academic awards the Albert Einstein world award and Taiwan Li-Fu TCM award, an academician of Chinese Academy of Sciences and Chinese Academic Degree Council (Medicine), a standing member of the committee of Chinese association for Science and Technology, the President of the Chinese Association of Integration of Traditional and Western Medicines and Vice-President of Geriatrics Society of Chinese Medical Association, a WHO consultant on Traditional medicine and advisor for Phytother Res (United Kingdom) and Abstr Chin Med (Hong Kong).

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**Correspondence to:** Ke-Ji Chen, Xiyuan Hospital, China Academy of Traditional Chinese Medicine, Beijing 100091, China

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### Abstract

Traditional Chinese medicine (TCM) is one of China's scientific treasures. We are very fortunate to apply modern scientific knowledge and methodology towards reorganizing our inherited TCM and to then promote the integration of TCM and Western medicine (TCM-WM). Over the 45 years, many remarkable achievements have been made in this regard and we are looking forward to the next achievements in the coming century; however, many challenges remain to the establishment of TCM-WM as a trusted and oft used approach for improving human health.

**Key words:** Gastroenterology; Integrated Traditional Chinese Medicine (TCM); Western Medicine

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### DEVELOPING NEW AND HIGHLY-EFFECTIVE MEDICINES

To date, 12807 kinds of traditional Chinese medicines (TCMs) and

botanical medicines exist in China. Investigating new drugs from those resources, based on the TCM theory and long-term clinical experience, is a promising endeavor. Previous new drugs identified by this approach include Artemisine, anisodamine, biphenyl diester, trichosanthin, tetrahydropalmatine, ligustrazine, tanshinone, puerarin, Erycibe obtusifolia alkaloid agrimophol, alizarin, ilexonin A, tetrandrine, total glycerides of tripterygium wilfordii, and ferulic acid. Among these, artemisine is capable of killing plasmodia of pernicious malaria rapidly and has been promoted as a malaria treatment by the World Health Organization (WHO).

In the 1980s, the United States, the United Kingdom and Japan developed new medicines from natural materials with beneficial therapeutic activities such as anti-tumor and anti-viral (for HIV). There are two different attitudes in the medical field regarding this trend. Some people believe that this is one of the ways to develop new medicines, while others entertain the entirely different view that this may serve to convert TCMs into the "Western medicine" practice. I personally believe that we should insist on having an open mind toward various considerations in scientific research. To develop new and highly effective medicines, we should not only pay attention to their economic value at home but also their competitive ability in the international market.

To reach this goal, we must take advantage of the advanced scientific and technological methods available to us. First, we should define the effective components, molecular structure and contents of Chinese herbal medicines. Second, we should define not only the general pharmacological features of each but also the effective mechanism (s) related to the whole body at the molecular level. Third, we should obtain the definite data of pharmacokinetics as well as strict evidence on the toxicology profile. In this manner, we can gain more competitive opportunities in the international market. We have already explored new immunopotentiators based on the TCM theory, such as ganoderma-polysaccharide, polyporus umbellatus-polysaccharide, and astragalus polysaccharide; some of these medicines were found to tonify body functions. Those research findings have made remarkable contributions to our country and to the traditional Chinese scientific culture. I believe that in the first 20 years of the coming century, we will develop more new drugs that will be better than Artemisine.

### TOWARDS IMPROVING AND CREATING PHARMACEUTICS IN CHINESE MEDICINES

Pharmaceutical study of sustained or control released tablets, specifically for skin- and mucosa-targeting drugs, has been made. Now, we should enhance these findings to develop new medicines, such as coated control release tablets, bone tent tablets, free-floating-in-the-stomach tablets and osmosis pump tablets, to name a few. Furthermore, we also have studied targeting drugs that are based

upon delivery *via* lipid or lipid protein, micro-capsule, micro-sphere, and magnet micro-globe; additionally, the delivery approach of bullet drug combined with monoclonal antibody has been studied. The development of those medicines is progressing rapidly.

Most Chinese herbal medicines are provided in the form of pills, powders, plasters, pellets, and tablets. There are also a few provided as injections, sprays and suppositories. The Center for Drug Evaluation of the Ministry of Health in China approved 217 patent drugs in 1993, only 10 of which were classified as second class; all others were classified as third and forth class. Chinese medicines have now spread throughout the world, but very few patients drink herbal tea and most report disliking it. The granules and powders of TCMs, however, are welcomed in America and Japan. In the international market, 90% of Chinese compound formulas are claimed by Japan and not by China. Taiwan has also been producing so-called scientific Chinese medicines, which have been accepted easily for various syndromes. I hope our medical researchers can enhance the studies on physio-pharmacology and bio-pharmacology in order to correct this problem and to make the Chinese medicines more popular internationally and thereby improve our national export business.

## TOWARDS STUDY OF THE CHINESE COMPOUND FORMULAS

The clinical application of a compound formula is the main trait and advantage of treatments based on Chinese medicines. The method of investigating any particular compound formula relies on modern science and technology to elucidate the mechanism underlying the medicine's function and, ultimately, to clarify the theory of TCM. Over the past 45 years, we have carried out vast research on more than 230 compound formulas. The research on Shengmaisan (pulse-producing powder), baoyuantang (invigorating original-qi pill) and da chengqitang (drastic purgative decoction) has provided experimental or clinical pharmacodynamic data that confirms the consistency of the TCM theory and its application. The research on the compatibility of compound formula has also proven its superiority; for instance, in the buzongyiqitang formula (decoction for reinforcing middle-jiao and replenishing qi), the chaihui (radix bupleuri) and shengma (rizoma cimicifugae) are the activators. In Japan, researchers are similarly focusing on compound formulas, such as xiaocaihutang (minorbupleurum decoction), and guizhifulingwan (cinnamon twing and poria pill); their approaches are very systematic and not behind our own efforts.

Further research on compound formulas is necessary, as they will explain the functioning mechanism and enrich the theory of TCM. It is very difficult to set up experimental animal models that precisely and accurately coincide with any human syndrome or disease. Therefore, the objectives of developing new experimental

models and methods must be very clear and effective. Meanwhile, the compound formula research—from the principal herb to the auxiliary herb, from the raw materials to the effective components—is also stressed in Japan. This approach represents one productive way to aim towards development of new medicines, and should be encouraged.

## TOWARDS PROMOTING RESEARCH ON BIANZHENG SHIZHI

Bianzheng shizhi, which is the diagnosis and treatment based on overall analysis of the patient's symptoms and signs, is the outstanding science of TCM. According to this theory, TCM can treat patients individually and directly to combat the particular syndromes. The scientific research on the essence of a syndrome forms the basis of the TCM theory. The syndromes are classified as basic, compound, multi-compound, comprehensive, partial organ, exogenous pathogenic factors, latent or overt syndromes, *etc.* Research on the essence of a syndrome is often performed from the aspect of its being combined with several different diseases, as the same syndrome may appear in different diseases. The clinical effect of a syndrome needs to also be considered from the perspectives of macro- and micro-observation indexes in combination. If the treatment is too flexible, it would be difficult to precisely pinpoint the exact profile of the syndrome. Therefore, it is paramount to abide by the basic plan that involves having a fixed formula based on the type of disease the patient is suffering with and then applying flexibility according to the different syndrome to perform the random-controlled research efforts. Researchers, therefore, need to closely follow-up related international progress in their field and obtain the results from others worldwide. This will promote productive competition with others at an international level, and help us to further align with the western medical standard that is stricter.

In the study of the essence of Chinese syndrome, we have already achieved tremendous successes in setting up experimental whole animal models of the various syndromes, including cold, heat, qi-deficiency, blood-deficiency, yin-deficiency, yang deficiency, yang-exhaustion, blood-stasis and hyperactivity of liver-yang syndromes, *etc.* Some models have even been developed that combine a particular syndrome with a particular disease. We have also made substantial progression towards building models of the syndromes in isolated organs or cultured cells.

I believe that in the coming century the research on TCM theory will have a meaningful break-through that will be facilitated by the systematic study of the syndrome to develop the TCM system; furthermore, the findings from these studies will promote new theories of the current medical science and enrich the worldwide medical system, enhancing the development of new drugs.

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