Medicine and Biopharmaceuticals

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This book, reporting the Proceeding of the International Conference on Medicine and Biopharmaceuticals, held in Guilin, China, from August 15-16, 2015, provides an interesting source of the great quantity of studies organized from many Chinese universities and research institutes on this important topic.It,presenting many research results on related fields of medicine and Biopharmaceuticals, has divided into four sessions: Session 1 *Medical Science*; Session 2 *Biomedical Engineering and Biotechnology*; Session 3 *Biological Pharmaceutical*; and Session 4 *Food Hygiene, Environment and Human*. It is really difficult to report all the discussions focused on the about two hundred papers coming from the most famous 30 medical and technical universities and research institutes located in the vast territory of China. However the lecture of this book, gives the possibility to the reader to understand and evaluate the reason of the incredible increased scientific papers and patents published from Chinese scientists, especially in the last ten years.

Many are the papers regarding the tissue engineering that, involving material science and life science, tries to develop new tissue/organ substitutes to ameliorate the human wellbeing. These new tissue/organs, in fact, are composed of cells and biological materials capable to promote the restoration, for example, of burned or wounded skin, reporting the organ at the healthy state. Biomaterials, in fact, play a critical role in engineering of tissue constructs, working as an artificial extracellular matrix to support regeneration. Naturally the compatibility between cell and the biomaterials used is a key problem to construct engineered tissue and organs.

In order to achieve the function of the cell-scaffold, and cell carrier, it is necessary to ensure that the cells have good adhesion, growth and reproduction on this new tissue. At this purpose it is to remember that cell affinity is an adhesion mechanism mediated by proteins between cells and materials, to ensure a good cell adhesion properties, indispensable for influencing proliferation, differentiation and function of the cells into a tissue.

Additionally, nanomaterials research had a significant impact on the progress of drug delivery systems. Thus a vast number of active ingredients has been encapsulated as nanoparticles in order to improve their design and mechanism of action on the target site. At this purpose, it is well known that the physicochemical characteristics of each active ingredient determine its *in vivo* performance, conditioning its pharmacokinetic and pharmacodynamic properties also. These physicochemical features determine their solubility, polarity, absorption, form and time circulation, diffusion capacity, metabolization or excretion as well as intensity, duration and efficacy of their action.

Encapsulation and Nanodimension enable to overcome such problems and allow a controlled diffusion assuring not only homogeneity and avoiding toxicity, but providing also the substances protection and enhancing their stability.

The use of modern bioengineered methods and Traditional Chinese Medicine (TCM) is the life motif of many reported papers of this book. With the development of medicine and update of knowledge, breast cancer therapy has come into a diversified comprehensive treatment stage. In the world including Western countries, TCM has become well known for its significant role in preventing and treating cancer. Thus, it has been shown that Xiaozhengshugan recipe as an adjunctive therapy combined with western medicine can relieve the clinical Chinese medical symptoms of breast cancer patients, promote the scores of quality of life (QOL), decrease the bio marker level of cancer antigen 15-3(CA15-3) and cancer antigen 125(CA 125), also if it seems not sufficient in preventing and delaying recurrence and metastasis. Moreover, Ethyl gallate extracted from *Euphorbiae fischeriana Steud*, seems to affect the adhesion and migration of breast cancer, cells reducing the over-expression of ST3Gal I. Therefore these findings suggested that this compound may be a potential therapeutic agent for patient with breast cancer.

Osteoporosis and osteopenia has been rapidly increasing in China in people aged over 60, so that the risk of fracture is becoming more and higher. Many papers report new strategies and intervening measures to be adopted for helping to prevent bone loss, particularly for women, according to TCM and/or western medicine using, for example, bone morrow mesenchymal stem cells (BMSCS) considered as promising *sending cells* in tissue engineering and regeneration therapy. Additionally, after 1949, traditional Chinese doctors and workers who devoted themselves to combining TCM and western medicine, researched scientific measures to improve their ancient medicine and raised new manipulations called *New Eight Manipulations for Fracture*.

It becomes the basic method of modern clinical bone setting, specifically significant in bone injuries. Thus, bone setting operation in the "small splint fixation" belongs to China first, followed by many other countries. Palasy technique is, therefore, one of the great contributions of Traditional Chinese Medicine to the world of medicine.

Bronchial asthma belongs to the TCM asthma, *xiao*, and other categories. In the field of TCM, most important cause of bronchial asthma is phlegm, and individual factors, diet, mood and fatigue are predisposing factors.

In recent years, four diagnostics objectives and standards of TCM in the diagnosis of asthma had achieved good results. To reduce the influence of subjective factors, and to guarantee the information acquisition of clinical Chinese medicine interrogation in the process of collecting unified standards and conditions, some scholars have developed a preliminary scale and interrogation system, and through the reliability and validity test of the scale, good scientific and normative outcomes were achieved, constituting a collection of hardware and software platforms.

Hypertension, also, and stroke with a prevalence rate of 60% is another common disease causing elderly damages and death, usually complicated with cardiovascular and renal damages, so that its control, treatment and clinical diagnosis is a key factor controlled in China by the more modern technologies. With the further development of population aging in China, people aged over 60 to 2030 is expected to reach more than 300 million and the number of stroke survival will surely continue to increase with the therapies in progress, in both TCM and western medicine.

Together with the elderly problem, the result of Chinese sixth national population census have shown

that the children aged 0 years old to 14 years old has been more than 22 millions, which takes the 16.6% of the total population in China.

At this purpose, there is no doubt that the health status of children is related to the future of a state, so that Chinese government is posing great importance to the drug clinical application in children and development of paediatric pharmacy, providing a better medical and health service.

The learning of endocrinology courses is of great importance in the early stage of medical studies. Students are generally insufficient in learning passion due to strong profession, abstract content and varied diseases of endocrinology. The traditional teacher-centered LBL of medical theory is difficult to meet the requirements to cultivate high-level medicine talented persons, affecting the quality of education. Thus, it has been proposed to adopt the Target-based learning (TBL) teaching method in bilingual education, by which students are required to actively learn about the contents of courses first and then cooperating with other students in the team to solve relevant problems.

This new methodology refers to a discussion-based teaching method in which a proper grouping method is used to a class into several teams in the early clinical courses, so as to jointly learn about and accomplish the analysis on medical records on a team basis. Thus, the TBL teaching method, widely applied in physiology, hysto-embriology, medical chemistry and other basic courses, is also universally recognized in nursering, pharmacy, nutrition, public health and professional educations. Moreover, applied for the exploratory process of educational reform in China, it plays a positive role in improving the performance and learning initiative of students, enhancing their comprehensive quality. For these reasons, the improvement to English level of the students has become one of the more important goals for the reform of higher education in China. Therefore great importance is attached to bilingual education, serving as a kind of effective mean to master the latest specialized knowledge and follow cutting-edge information about science and technology.

On one hand, key points are highlighted, so as to guarantee that the contents of courses can be implemented, according to the teaching progress.

On the other hand, both Chinese and English languages are systematically used as teaching media. Thus, students are made to properly deal with the relationship between foreign language teaching and professional course teaching as much as possible in terms of specialized knowledge and competence of two languages.

Besides explanation in English, Chinese language is also used, especially to explain important concepts, contents and difficulties. Moreover, the method enhances the students' practical ability and collaborative spirit, and let's students possess social competitive capability. Finally, this Chinese cultural program lays a good foundation to realize the *internationalization of* higher education, necessary for cultivating versatile talents and accelerating the integration between research center/colleges/universities and the world. Towards this direction is going also the Clinical Pharmacy education, shifting from the current traditional mode of *chemical-drug* to a new mode of *biology-medicine-Pharmacy-society*. Thus, the concept of people-*oriented and service pharmacy* has been widely accepted.

The core of pharmacy services is, therefore, people-*oriented, which* requires that pharmacy workers should have strong self-learning ability and communication skill. It is to remember, in fact, that clinical pharmacy is a comprehensively applied discipline in combination of the pharmaceutical knowledge with the clinical practice. The patient-centered idea, the behaviour to face patients directly, the clinical drug treatment with research and practice, and the improvement of medication levels are

required by clinical pharmacy, so that the clinical practice of students is considered particularly important.

Currently, clinical pharmacy is facing the environment that has undergone tremendous changes in China, such as the great elevation in the proportion of hospitals pharmacy in the appraisal of Class 3 Hospitals by Ministry of Health.

It is difficult to focus and discuss all the interesting topics reported in this proceeding-book because many are the research results obtained in different technical fields: going from the tomographic imaging used for biomedical and biopharmaceutical applications to the metabonomics analysis for determining the endogenous cellular metabolic components, to the selection of the of ailments for ameliorating QOL or the use of natural drugs, recovered from plants in use since the ancient time from Chinese medicine.

In my opinion this book opens an interesting window to understand the great progress obtained in China in the last twenty years in the scientific, technological and economical fields, where all the universities and research centers have been involved to increase the progress of an entire people. For these reasons these proceedings could be of great interest for scientists who like to know and understand the so called Chinese miracle!

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Editor-in-Chief