

The July 2020 Newsletter of The GP-TCM Research Association



Contents of the GP-TCM RA Newsletter July 2020

- **Special Feature: In Memory of Professor Geoffrey Burnstock (1929~2020)**
- **Highlights on Academic Achievements of GP-TCM RA Members**
 - Aptamer: Molecular insight and translational theranostics.
 - Challenges at the time of COVID-19: Opportunities and innovations in antivirals from nature.
- **Selected Information on COVID-19**
 - Pathophysiology, transmission, diagnosis, and treatment of coronavirus disease 2019 (COVID-19).
 - The important role of polysaccharides from a traditional Chinese medicine-Lung cleansing and detoxifying decoction against the COVID-19 pandemic.
 - Prepare now for a winter COVID-19 peak, warns Academy of Medical Sciences.
- **Recommended Reading**
 - Theabrownin from Pu-erh tea attenuates hypercholesterolemia via modulation of gut microbiota and bile acid metabolism.
 - Herb-sourced emodin inhibits angiogenesis of breast cancer by targeting VEGFA transcription.
 - Rationale and design of the AUGUST-AHF study.
- **Invitations from WJTCM, the Official Journal of GP-TCM RA**
 - Pharmacology and Toxicology of Herbal Medicine
 - Systems Biology and Metabolomics of Traditional Chinese Medicine
 - Processing of Chinese Medicinal Materials (Zhongyao Paozhi)
 - Biosynthesis-Driven Quality Design of Materia Medica
 - Qi Deficiency and Blood Stasis
- **Prof Zhongzhen ZHAO Delivers the First Seminar in WFCMS' Global Webinar Series**
- **Monthly Chinese Materia Medica Highlights: Rice and Millet**

Acknowledgements: The editors would like to thank Dr **Chi Zhang** (Beijing), Dr **Clara Lau** (Hong Kong), Prof **Hubiao Chen** (Hong Kong), Prof **Jiqing Liu** (Shenzhen), Prof **Pierre Duez** (Mons), Prof **Rudolf Bauer** (Graz), Dr **Taiping Fan** (Cambridge), Prof **Zhongzhen Zhao** (Hong Kong), and the **WJTCM Editorial Office** (Beijing) for their great contributions.

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The July 2020 Newsletter of The GP-TCM Research Association



Special Feature: In Memory of Professor Geoffrey Burnstock (1929~2020)

<https://www.theguardian.com/science/2020/jun/19/geoffrey-burnstock-obituary>

<https://www.ucl.ac.uk/biosciences/news/2020/jun/professor-geoffrey-burnstock-1929-2020>



Professor Geoffrey Burnstock was one of the Advisory Board Members of the FP7 GP-TCM Project and he continued to support the GP-TCM RA as an Honorary Member. As described in a GP-TCM Newsletter in March 2012, “He was the most cited scientist in Pharmacology and Toxicology 1994-2006. His papers have been cited over 60,000 times with a Hirsch (h)-index of 112. The late Nobel

Laureate (1988) Professor Sir James Black who nominated Geoffrey as a Nobel Prize candidate, described Geoffrey in one word--effervescent.” In 2017, Geoffrey was appointed an Honorary Professor of Chengdu University of Traditional Chinese Medicine in recognition of his “significant achievements and extraordinary importance in Traditional Chinese Medicine”. (<http://www.gp-tcm.org/wp-content/uploads/2012/03/GP-TCM-Mar-2012.pdf> ; <http://www.gp-tcm.org/wp-content/uploads/2017/05/GP-TCM-RA-NL-28-3-2017-compressed.pdf>)

The honour was probably in recognition of his hypothesis about the mechanism underlying the process of acupuncture, which has attracted considerable attention internationally. His hypothesis has been described in the following articles: [Acupuncture: a novel hypothesis for the involvement of purinergic signalling.](#); [Therapeutic potential of purinergic signalling for diseases of the urinary tract.](#); [Purinergic signalling in the lower urinary tract.](#); [Purinergic signaling in acupuncture](#) (<https://www.sciencemag.org/collections/art-and-science-traditional-medicine-part-1-tcm-today-case-integration>). His collaboration with Chinese scientists was reported here: [From the Sino-German collaboration on purines to the Chinese Purine Club.](#); [Astroglia-Derived ATP Modulates CNS Neuronal Circuits.](#)

Highlights on Academic Achievements of GP-TCM RA Members

1. Aptamer: Molecular insight and translational theranostics. Theme-based research scheme 2020/21 (10th round)--Theme 1:Promoting Good Health--funded by Research Grants Council. Aptamers are promising agents in both diagnostic and therapeutic applications. We are a collaborating team (Guangdong-Hong Kong-Macao Greater Bay Area Research Platform for Aptamer-based Translational Medicine and Drug Discovery (HKAP)) with top scientists in this field. We have established state-of-the-art technologies with research outcomes being published in high-impact journals (Cell,

The July 2020 Newsletter of The GP-TCM Research Association



Science, Nature, Nature Medicine, Nature Communications, ACS Nano, PNAS). One of our aptamers for osteogenesis imperfecta therapy has been granted by US-FDA for Orphan Drug Designation (DRU-2019-6966). **Task 1: Aptamer selection optimization:** Standard selection method SELEX is time-consuming with high failure rates. With rich experiences in SELEX and well-established automatic microfluidic system, we will develop a fully integrated SMART and high-throughput microfluidic platform for rapid, efficient and reliable selection of aptamers against circulating proteins. Selected aptamers against purified transmembrane proteins often fail to recognize targets in live cells. We will develop an innovative LOSS-GAIN cell-SELEX methodology incorporating into the microfluidics for selecting aptamers against transmembrane proteins on live cells. **Task 2: Aptamer molecular insight:** The 3D structure of aptamer-target could not only help to understand the interaction mechanism, but also guide chemical modifications to improve affinity and activity of aptamers to facilitate applications. We have developed the aptamer LC07 against osteosarcoma cells and the aptamer XQ-2d against pancreatic cancer cells. PARP1 and CD71 were then identified as the target of LC07 and XQ-2d, respectively. We will determine the binding mode of LC07-PARP1 and XQ-2d-CD71, respectively, using our developed methodologies. Phosphorodithioate substitution will be performed on LC07 and XQ-2d with the guidance of the determined 3D structures, respectively, to enhance the induced-fit arrangement and binding affinity. **Task 3: Diagnostic aptamers:** Cancer diagnosis at early stage is a major challenge in the clinic. We have established highly sensitive aptamer-based diagnostic devices for various diseases. We will develop an aptamer-mediated multiplexing diagnostic methodology by novel nucleic acid chemistries ideally for low-abundance biomarkers in latent pancreatic cancer. **Task 4: Therapeutic aptamer-drug conjugates:** The highly specific aptamers is a promising strategy for targeted delivery of cytotoxic natural products. However, the low conjugating efficiency of aptamer to drug and the chemical instability of conjugating linker in liquid-phase reactions restrained their drugability. We will develop solid-phase aptamer-drug conjugating methodology to synthesize conjugates of pancreatic cancer-specific aptamer XQ-2d with cytotoxic anti-tumor natural products and examine their antitumor activities and toxicities, respectively. This project will promote molecular insight and translational theranostics of aptamers, allowing Hong Kong to become the world-leading centre for aptamer research. Details: https://www.ugc.edu.hk/eng/rgc/funded_research/layman/theme/trs10_lay_sum.html#101_20.

(Project coordinator [Aiping Lu is the President of GP-TCM RA](#))

- 2. Challenges at the time of COVID-19: Opportunities and innovations in antivirals from nature.** *Planta Medica*. 2020. As viral infections are an increasing threat to human societies, the need for new therapeutic strategies is becoming even more

The July 2020 Newsletter of The GP-TCM Research Association



obvious. As no vaccine is available for COVID-19, the development of directly acting antiviral agents and preventive strategies have to be considered. Nature provides a huge reservoir of anti-infectious compounds, from which we can deduce innovative ideas, therapies, and products. Anti-adhesive natural products interact with the receptor-mediated recognition and early interaction of viruses with the host cells, leading to a reduced internalisation of the virus and reduced infections (e.g., procyanidin-B-2-di-O-gallate against influenza and herpes virus). Lignans like podophyllotoxin and bicyclol show strong antiviral activities against different viruses, and essential oils can directly interact with viral membranes and reduce the host's inflammatory responses (e.g., 1,8-cineol). *Echinacea* extracts stimulate the immune system, and bioavailable alkaloids are key players by interacting with immunomodulating cannabinoid receptors. COVID-19 and SARS-CoV-2 infections have, in part, successfully been treated in China by preparations from traditional Chinese medicine and, while it is too early to draw conclusions, some promising data are available. There is huge potential, but intensified research is needed to develop evidence-based medicines with a clearly defined chemical profile. Intensified research and development, and therefore funding, are needed for exploiting nature's reservoir against viral infections. Combined action for basic research, chemistry, pharmacognosy, virology, and clinical studies, but also supply chain, sustainable sourcing, and economic aspects have to be considered. This review calls for intensified innovative science on natural products for the patients and for a healthier world. Details: DOI: [10.1055/a-1177-4396](https://doi.org/10.1055/a-1177-4396)

(Co-author [Rudolf Bauer](#) is a member of the BoD of GP-TCM RA)

Selected Information on COVID-19

- 1. Pathophysiology, transmission, diagnosis, and treatment of coronavirus disease 2019 (COVID-19).** *JAMA*, 2020. The coronavirus disease 2019 (COVID-19) pandemic, due to the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has caused a worldwide sudden and substantial increase in hospitalizations for pneumonia with multiorgan disease. This review discusses current evidence regarding the pathophysiology, transmission, diagnosis, and management of COVID-19. SARS-CoV-2 is spread primarily via respiratory droplets during close face-to-face contact. Infection can be spread by asymptomatic, presymptomatic, and symptomatic carriers. The average time from exposure to symptom onset is 5 days, and 97.5% of people who develop symptoms do so within 11.5 days. The most common symptoms are fever, dry cough, and shortness of breath. Radiographic and laboratory abnormalities, such as lymphopenia and elevated lactate dehydrogenase, are common, but nonspecific. Diagnosis is made

The July 2020 Newsletter of The GP-TCM Research Association



by detection of SARS-CoV-2 via reverse transcription polymerase chain reaction testing, although false-negative test results may occur in up to 20% to 67% of patients; however, this is dependent on the quality and timing of testing. Manifestations of COVID-19 include asymptomatic carriers and fulminant disease characterized by sepsis and acute respiratory failure. Approximately 5% of patients with COVID-19, and 20% of those hospitalized, experience severe symptoms necessitating intensive care. More than 75% of patients hospitalized with COVID-19 require supplemental oxygen. Treatment for individuals with COVID-19 includes best practices for supportive management of acute hypoxic respiratory failure. Emerging data indicate that dexamethasone therapy reduces 28-day mortality in patients requiring supplemental oxygen compared with usual care (21.6% vs 24.6%; age-adjusted rate ratio, 0.83 [95% CI, 0.74-0.92]) and that remdesivir improves time to recovery (hospital discharge or no supplemental oxygen requirement) from 15 to 11 days. In a randomized trial of 103 patients with COVID-19, convalescent plasma did not shorten time to recovery. Ongoing trials are testing antiviral therapies, immune modulators, and anticoagulants. The case-fatality rate for COVID-19 varies markedly by age, ranging from 0.3 deaths per 1000 cases among patients aged 5 to 17 years to 304.9 deaths per 1000 cases among patients aged 85 years or older in the US. Among patients hospitalized in the intensive care unit, the case fatality is up to 40%. At least 120 SARS-CoV-2 vaccines are under development. Until an effective vaccine is available, the primary methods to reduce spread are face masks, social distancing, and contact tracing. Monoclonal antibodies and hyperimmune globulin may provide additional preventive strategies. **Conclusions and Relevance:** As of July 1, 2020, more than 10 million people worldwide had been infected with SARS-CoV-2. Many aspects of transmission, infection, and treatment remain unclear. Advances in prevention and effective management of COVID-19 will require basic and clinical investigation and public health and clinical interventions. Details: <https://jamanetwork.com/journals/jama/fullarticle/2768391>

2. The important role of polysaccharides from a traditional Chinese medicine- Lung cleansing and detoxifying decoction against the COVID-19 pandemic.

Carbohydrate Polymers. 2020. The new coronavirus pneumonia, named COVID-19 by the World Health Organization, has become a pandemic. It is highly pathogenic and reproduces quickly. There are currently no specific drugs to prevent the reproduction and spread of COVID-19. Some traditional Chinese medicines, especially the Lung Cleansing and Detoxifying Decoction (Qing Fei Pai Du Tang), have shown therapeutic effects on mild and ordinary COVID-19 patients. Polysaccharides are important ingredients in this decoction. This review summarizes the potential pharmacological activities of polysaccharides isolated by hot water extraction from Lung Cleansing and Detoxifying Decoction, which is

The July 2020 Newsletter of The GP-TCM Research Association



consistent with its production method, to provide the theoretical basis for ongoing research on its application. Details: [doi: 10.1016/j.carbpol.2020.116346](https://doi.org/10.1016/j.carbpol.2020.116346)

3. Prepare now for a winter COVID-19 peak, warns Academy of Medical Sciences.

The UK must prepare now for a potential new wave of coronavirus infections this winter that could be more serious than the first, says a new report from the Academy of Medical Sciences released today (Tuesday 14 July). Combined with the disruption already created in the health service by COVID-19, a backlog of patients needing NHS assessment and treatment, and the possibility of a flu epidemic, this poses a serious risk to health in the UK. These new pressures are in addition to the challenge winter usually presents to the NHS, when other infectious diseases are more common and conditions such as asthma, heart attack, chronic obstructive pulmonary disease and stroke tend to worsen. The 'Preparing for a challenging winter 2020/21' report stresses that 'intense preparation' is urgently needed throughout the rest of July and August to reduce the risk of the health service being overwhelmed and to save lives this winter. The Academy has also released a 'Peoples perspective' report, written by patients and carers that calls for these actions to be developed through engagement with patients, carers and the public to ensure services, guidelines and communications work for people, rather than focusing plans on individual medical conditions. Research suggests that COVID-19 is more likely to spread in winter with people spending more time indoors and the virus able to survive longer in colder, darker winter conditions. The report notes there is a high degree of uncertainty about how the COVID-19 epidemic will evolve in the UK over the coming months, but suggests a 'reasonable worst-case scenario' to prepare for is one where the average number of people that one infected person will pass the virus on to (Rt value) rises to 1.7 from September 2020 onwards. Modelling of this scenario suggests there would be a peak in hospital admissions and deaths in January and February 2021 similar to or worse than the first wave in spring 2020, coinciding with a period of peak demand on the NHS. It estimates the number of COVID-19-related hospital deaths (excluding care homes) between September 2020 and June 2021 could be as high as 119,900. However, these figures do not take account of the fact that Government would act to reduce the transmission rate, or the recent results from a trial to treat patients in intensive care with the steroid dexamethasone, which could substantially reduce death rates. Details: <https://acmedsci.ac.uk/more/news/prepare-now-for-a-winter-covid-19-peak-warns-academy-of-medical-sciences>

The July 2020 Newsletter of The GP-TCM Research Association



Recommended Reading

- 1. Theabrownin from Pu-erh tea attenuates hypercholesterolemia via modulation of gut microbiota and bile acid metabolism.** *Nature Communications*. 2019. Pu-erh tea displays cholesterol-lowering properties, but the underlying mechanism has not been elucidated. Theabrownin is one of the most active and abundant pigments in Pu-erh tea. Here, we show that theabrownin alters the gut microbiota in mice and humans, predominantly suppressing microbes associated with bile-salt hydrolase (BSH) activity. Theabrownin increases the levels of ileal conjugated bile acids (BAs) which, in turn, inhibit the intestinal FXR-FGF15 signaling pathway, resulting in increased hepatic production and fecal excretion of BAs, reduced hepatic cholesterol, and decreased lipogenesis. The inhibition of intestinal FXR-FGF15 signaling is accompanied by increased gene expression of enzymes in the alternative BA synthetic pathway, production of hepatic chenodeoxycholic acid, activation of hepatic FXR, and hepatic lipolysis. Our results shed light into the mechanisms behind the cholesterol- and lipid-lowering effects of Pu-erh tea, and suggest that decreased intestinal BSH microbes and/or decreased FXR-FGF15 signaling may be potential anti-hypercholesterolemia and anti-hyperlipidemia therapies. Details: <https://doi.org/10.1038/s41467-019-12896-x>
- 2. Herb-sourced emodin inhibits angiogenesis of breast cancer by targeting VEGFA transcription.** *Theranostics*. 2020. Anti-angiogenesis is an important and promising strategy in cancer therapy. However, the current methods using anti-vascular endothelial growth factor A (VEGFA) antibodies or inhibitors targeting VEGFA receptors are not as efficient as expected partly due to their low efficiencies in blocking VEGFA signaling *in vivo*. Until now, there is still no method to effectively block VEGFA production in cancer cells from the very beginning, i.e., from the transcriptional level. Here, we aimed to find bioactive small molecules to block VEGFA transcription. We screened our natural compound pool containing 330 small molecules derived from Chinese traditional herbs for small molecules activating the expression of seryl-tRNA synthetase (SerRS), which is a newly identified potent transcriptional repressor of VEGFA, by a cell-based screening system in MDA-MB-231 cell line. The activities of the candidate molecules on regulating SerRS and VEGFA expression were first tested in breast cancer cells. We next investigated the antiangiogenic activity *in vivo* by testing the effects of candidate drugs on the vascular development in zebrafish and by matrigel plug angiogenesis assay in mice. We further examined the antitumor activities of candidate drugs in two triple-negative breast cancer (TNBC)-bearing mouse models. Furthermore, streptavidin-biotin affinity pull-down assay, coimmunoprecipitation assays, docking analysis and chromatin immunoprecipitation were performed to identify the direct targets of candidate drugs. We identified emodin that could greatly increase SerRS

The July 2020 Newsletter of The GP-TCM Research Association



expression in TNBC cells, consequently reducing VEGFA transcription. Emodin potently inhibited vascular development of zebrafish and blocked tumor angiogenesis in TNBC-bearing mice, greatly improving the survival. We also identified nuclear receptor corepressor 2 (NCOR2) to be the direct target of emodin. Once bound by emodin, NCOR2 got released from SerRS promoter, resulting in the activation of SerRS expression and eventually the suppression of VEGFA transcription. **Conclusion:** We discovered a herb-sourced small molecule emodin with the potential for the therapy of TNBC by targeting transcriptional regulators NCOR2 and SerRS to suppress VEGFA transcription and tumor angiogenesis. Details: [doi: 10.7150/thno.43622](https://doi.org/10.7150/thno.43622)

- 3. Rationale and design of the AUGUST-AHF study.** *ESC Heart Failure*. 2020. We aim to assess the effect of a lyophilized herbal injection on 90 day mortality and readmission rates in patients with acute heart failure (AHF). The AUGUST-AHF study is a multicentre, randomized, double-blind, placebo-controlled trial enrolling 1270 hospitalized patients for AHF. Patients are randomized to receive *YiqiFumai* lyophilized injection (5.2 g/day) or placebo for 10 days, in addition to standard therapy, using a 1:1 ratio via an interactive web response system. The primary endpoint is the 90 day all-cause mortality or AHF readmission rates. Secondary endpoints include 180 day all-cause mortality or heart failure readmission rates, length of hospital stay for the indexed AHF, 90 day cardiac-specific mortality rate, occurrence of worsening heart failure through Day 10, changes in the Minnesota Living with Heart Failure Quality of Life scale score through Day 180, and 90 day major adverse cardiac events. Additional secondary endpoints include change in dyspnoea via visual analogue scale (VAS) and Likert 7-point comparator scale, N terminal pro-B-type natriuretic peptide value and New York Heart Association functional class, and the total amount of diuretics for the indexed AHF hospitalization. Study recruitment is expected to be completed by March 2021, and follow-up will end in September 2021. In an optional sub-study, patients will be followed up for 3 years. **Conclusions:** To our best knowledge, AUGUST-AHF is the first study assessing the efficacy of a Chinese herbal injection in patients with AHF. The results will be valuable to guide clinicians in using *YiqiFumai* lyophilized injection, which was included in the latest Chinese Health Insurance Catalog. Details: <https://doi.org/10.1002/ehf2.12787>

The July 2020 Newsletter of The GP-TCM Research Association



Invitation from the Official Journal of GP-TCM RA

1. WJTCM Call for papers: Pharmacology and Toxicology of Herbal Medicine.

Special Issue on
Pharmacology and Toxicology of Herbal Medicine

CALL FOR PAPERS

Guest Editor
Prof. Hongxi Xu

Guest Editor
Prof. Xuanbin Wang

Guest Editor
Prof. Pulok Kumar Mukhrjee

The special issue on *Pharmacology and Toxicology of Herbal Medicine* focuses on the biological effects and mechanisms of herbal medicine. It has a broad scope, covering basic research to clinical studies regarding pharmacology and toxicology.

We cordially invite researchers and experts to contribute original research articles as well as reviews on pharmacology and toxicology of herbal medicine.

Potential topics include but are not limited to:

- Bioactive principles from herbal medicine,
- Biological, pharmacological activities and mechanisms of herbal medicine,
- Genomics, proteomics, metabolomics, pharmacoinformatics studies on herbal medicine,
- Toxicology of herbal medicine.

Authors can follow the author instructions and submit their manuscripts via the Manuscript System at:
<https://mc03.manuscriptcentral.com/wjtcn>

Guest Editors

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Deadline for submission

January 30, 2021

Intended publication date

April 30, 2021

The July 2020 Newsletter of The GP-TCM Research Association



2. WJTCM Call for papers: Systems Biology and Metabolomics of Traditional Chinese Medicine



Special Issue on
Systems Biology and Metabolomics of Traditional Chinese Medicine

CALL FOR PAPERS



Guest Editor
Prof. Xi-jun Wang



Guest Editor
Prof. Hai-tao Lu



Guest Editor
Prof. Toshiaki Makino

Traditional Chinese Medicines (TCMs) are evidenced to confer therapeutic actions by largely interacting with dysregulated multi-layers molecules that underlie diseases, which can be defined as the holistic characteristics of TCMs to treat different diseases.

The fact is that systems biology, and metabolomics have the robust-capacity to better understand the holistic characteristics by globally deciphering the complex interactions between TCMs and diseases associated with dysregulated molecules. Currently, they are widely used to address many key questions in TCMs involving chemical characterization, therapeutic efficacy, toxicology and metabolic features, etc.

We invite the scholars in the niches to contribute research articles, reviews, and perspectives to this special issue.

Potential topics include but are not limited to:

- metabolomics of TCMs
- multiple omics of TCMs
- network pharmacology of TCMs
- systems biology of TCMs

Authors can submit their manuscripts via the Manuscript System at <https://mc03.manuscriptcentral.com/wjtc>

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May. 30, 2021

Intended publication date

October 30, 2021

The July 2020 Newsletter of The GP-TCM Research Association



3. WJTCM Call for papers: Processing of Chinese Medicinal Materials (Zhongyao Paozhi)



Special Issue on
Processing of Chinese Medicinal Materials (Zhongyao Paozhi)

CALL FOR PAPERS



Guest Editor
Prof. Tu-lin Lu



Guest Editor
Prof. Zhi-ling Yu



Guest Editor
Prof. Yuan-shiun Chang

In traditional Chinese medicine (TCM) practice, one of the distinctive features is the use of processed Chinese medicinal materials (Yinpian). It is Zhongyao Paozhi, a unique pharmaceutical technique, that transforms raw Chinese medicinal materials into Yinpian. Zhongyao Paozhi plays a pivotal role in guaranteeing the clinical efficacy and safety of TCM therapies.

We invite researchers home and abroad to contribute original research articles as well as reviews on the topic of Zhongyao Paozhi.

Potential topics include but are not limited to:

- a. Scientific basis of Zhongyao Paozhi.
- b. Intelligentization of Zhongyao Paozhi.
- c. Techniques of Zhongyao Paozhi.
- d. Quality standards of adjuvant materials for Zhongyao Paozhi.
- e. Quality markers of Yinpian.
- f. Quality standards of Yinpian.

Authors can follow the author instructions and submit their manuscripts via the Manuscript System at:

<https://mc03.manuscriptcentral.com/witcm>.

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Deadline for submission
October 30, 2020

Intended publication date
December 25, 2020

The July 2020 Newsletter of The GP-TCM Research Association



4. WJTCM Call for papers: Biosynthesis-Driven Quality Design of Materia Medica

World Journal of Traditional Chinese Medicine (WJTCM)

The official journal of WFCMS and GP-TCM



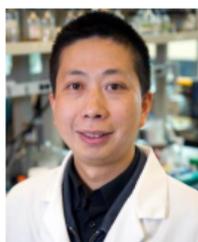
Special Issue on

Biosynthesis-Driven Quality Design of Materia Medica

CALL FOR PAPERS



Guest Editor
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Guest Editor
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Biosynthesis and metabolic engineering together with molecular breeding provides an attractive approach to enhance the yield of effective components in medicinal plants and thus to improve or design the quality of Chinese Materia Medica, which is a great motivation for the sustainable development of the entire supply chain of traditional Chinese medicines.

We invite researchers home and abroad to contribute original research articles as well as reviews on the topic of biosynthesis-driven quality design of Chinese Materia Medica and other herbs.

Potential topics include but not limited to:

- Elucidation and mapping of biosynthetic pathways of the effective components.
- Metabolic engineering or regulation for the improvement of herbal quality.
- Progress in understanding the biosynthesis of effective components.
- Application of molecular breeding technology to medicinal plants.

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Authors can submit their manuscripts via the Manuscript System at <https://mc03.manuscriptcentral.com/wjtcms>.

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Manuscript Due Date
March 30, 2021

Intended Publication Date
June 25, 2021

The July 2020 Newsletter of The GP-TCM Research Association



5. WJTCM Call for papers: Qi Deficiency and Blood Stasis

World Journal of Traditional Chinese Medicine (WJTCM)

The official journal of WFCMS and GP-TCM



Special Issue on
Qi Deficiency and Blood Stasis

CALL FOR PAPERS



Guest Editor
Prof. Jing-Yan Han



Guest Editor
Prof. Jian-Xun Liu



Guest Editor
Prof. Jing-Yuan Mao



Guest Editor
Prof. Ming-Jun Zhu

Qi deficiency and blood stasis is a common feature in coronary heart disease, cardiac hypertrophy, myocardial ischemia-reperfusion injury and heart failure, for which there is a lack of effective prevention and treatment methods in modern medicine. Some traditional Chinese medicine (TCM) has shown beneficial effect on heart diseases in clinic, and increasing clinical and basic studies have been carried out devoting to the mechanism behind these medicines, particularly focusing on their potential of tonifying Qi and promoting blood circulation, as well as the scientific essence of the Qi deficiency and Blood Stasis. In order to exchange the latest research results in this field, we have organized special issues of Qi deficiency and blood stasis, tonifying Qi and promoting blood circulation. Experts from this field are welcome to contribute original research articles or reviews.

Potential topics include but not limit to:

- Reviews on Qi deficiency and blood stasis, tonifying Qi and promoting blood circulation
- Clinical studies regarding Qi deficiency and blood stasis and tonifying Qi and promoting blood circulation
- Basic studies regarding Qi deficiency and Blood Stasis and tonifying Qi and promoting blood circulation
- Pharmacological mechanisms of tonifying Qi and promoting blood circulation

Authors can submit their manuscripts via the Manuscript System at <https://mc03.manuscriptcentral.com/wjtcn>.

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Accept submission date:

July. 30, 2020-July, 25, 2021

The July 2020 Newsletter of The GP-TCM Research Association



Prof Zhongzhen ZHAO Delivers the First Seminar in WFCMS' Global Webinar Series



As part of its worldwide campaign to promote Chinese medicine, World Federation of Chinese Medicine Societies (WFCMS) has launched a live-streamed webinar series with a lineup of esteemed guest speakers. The first seminar was given by Professor Zhongzhen Zhao, Chair Professor of CMTR on 22 May on the topic of "The world of *bencao*, the *bencao* of the world — in commemoration of the 502nd anniversary of the birth of Li Shizhen". In the 100-minute webinar, Professor Zhao enthralled his audience with seven compelling stories including: "The mystery of the Li Shizhen statue"; "In search of the manuscript of *Compendium of Materia Medica*"; "In memory of the experienced and knowledgeable medical historian Ma Jixing"; "Discovering a new species of *Flos Magnoliae* in Dabie Mountains — a loving tribute to the late mentor"; "On the hunt for ancient Chinese medicinal specimens in London"; "Exploring the origin of *Calculus Macacae Mulattae* in India", as well as "The unnoticed and forgotten museum of Chinese medicine". Hailed by his peers as the "missionary of the Chinese medicine culture", Professor Zhao boasts decades of experience in *bencao* studies, setting foot in over 30 Chinese provinces and more than 40 countries across seven continents to conduct field research on traditional medicines. To help his audience get the gist of the *Compendium of Material Medica*, Professor Zhao gave a detailed account of his own journey into the world of *bencao* which is encapsulated in the 1.9 million-word ancient Chinese medicine encyclopedia. Following his talk, Professor Zhao went on to exchange his views on topics such as the application and future development of Chinese herbal medicines with guests from all over the world. He was then joined by Professor Aiping Lu, Dean of SCM, who took the opportunity to share with the global audience his insights into the promotion and standardisation of Chinese medicine. More than 200 leaders of relevant professional bodies, institutions and enterprises from over 20 countries and regions joined the discussions at the webinar, attracting close to 19,000 viewers during the live broadcast. Details: https://scm.hkbu.edu.hk/en/news/news_799.html

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Monthly Chinese Materia Medica Highlights

Rice (*Oryza sativa*, Poaceae/Gramineae, 稻 (大米), left) and millet (*Setaria italica*, Poaceae/Gramineae, 粟 (小米), right)



Under the category of *materia dietetica* (nourishing substances), both rice (widely cultivated in tropical and warm temperate areas) and millet (sporadically cultivated worldwide) are important cereals of the international food industry.

In Chinese *materia medica* (medicinal substances), the dried germinated ripe fruit of *Oryza sativa* is known as rice spout (oryzae fructus germinatus, 稻芽). As the mainstream commercial medicinal material, it is produced throughout the rice-production regions especially in the southern part of China. Rice spout reduces food stagnation, strengthens the spleen, and improves the appetite. In the regions of the central and upper Yellow River where *Oryza sativa* is not available, the dried germinated ripe fruit of *Setaria italica* is used medicinally and is known as millet spout (setariae fructus germinatus, 谷芽). Millet spout has the same functions and indications as those of rice spout.

稻 (大米)

江南有稻味甘温
偶尔相逢日日闻
踏水寻香知故里
餐台之上见时频

粟 (小米)

田间有粟味甘凉
自古出生在北方
偶有随风行远处
餐时养胃又闻香

The above colour photographs, English texts and Chinese poems are contributed by Prof **Hubiao Chen** (Hong Kong), Dr **Ping Guo** (Hong Kong) and Prof **Jiqing Liu** (Shenzhen), respectively. This column is advised by Prof **Zhongzhen Zhao** (Hong Kong).