Good Practice in Traditional Chinese Medicine Research Association

中医药规范研究学会

January-February 2023 Newsletter

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CONTENT

Welcome message from the new President

It is certainly my great honor and pleasure to become the 6th President of GP-TCM RA starting from 1 January 2023. Thanks to the great efforts of all the past presidents and Board members who have laid a strong foundation of our Association in the past 10 years. In the beginning of the second decade, with passion, I am eager to take up the challenge of leading our Association into an even more active, exciting, fruitful and colorful "teenage period".

Firstly, I would like to take this opportunity to introduce the 15 board of directors (BoD) for the new term 2023-2024 as shown below. Stepping down from my Secretary-General role for the past 6 years, I am pleased that Prof. Simon Lee will serve as the new Secretary-General. While Dr. Tai-Ping Fan will continue his dedicated role as the Treasurer, and my congratulations to Dr Mei Wang who is the new President-Elect. I certainly look forward to working closely with all the BoD members.

Secondly, our popular newsletter has always been an important channel for keeping our members up-to-date with our Association activities, as well as disseminating relevant TCM information. With the new editorial board for 2023-2024, we will continue to provide our readers the latest information on our Association and the global TCM matters. Being the new editor-in-chief, I welcome any comments from our members on the future development of our newsletter, as well as any members who would like to contribute to our newsletter.

GP-TCM RA Newsletters – editorial board (2023-2024)

Thirdly, I would like to welcome all the chairs and co-chairs of our 7 Interest Groups (IG) on board for the term 2023-2024, particularly those new comers including Prof. De-An Guo, Dr. Xiao-Yang Hu, Dr Li-Ping Qu, Prof. Lie-Fen Shyur, Prof. Chunming Wang and Prof. Lidan Zhong. In the recent BoD meeting, I have proposed the following activities for each of the 7 IGs in the coming 2 years:

a) Regularly updating their corresponding IG section in our website;

b) To organize at least 1 workshop during these 2 years focusing on the main challenges and key issues of good practice in their corresponding IG;

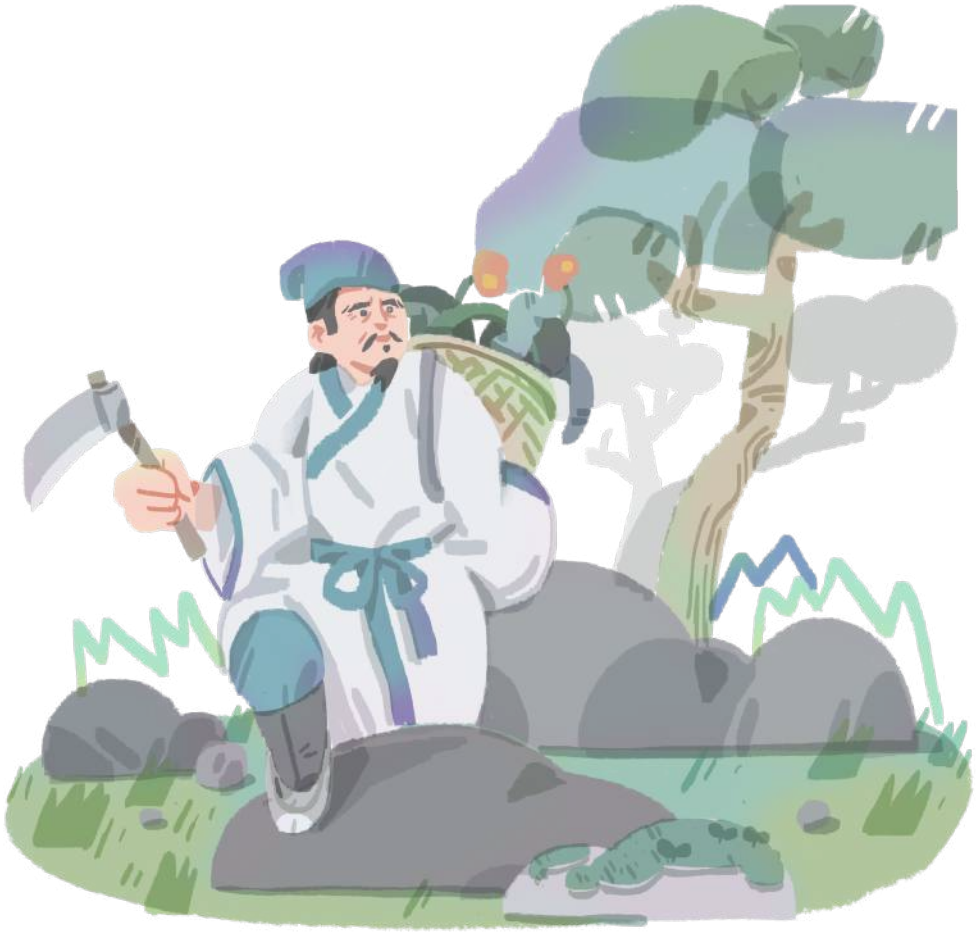
c) To organize their corresponding IG session as part of the program of our Annual Meetings.

With the above, I encourage all our members to actively participate in the future activities of these IGs according to your interests.

Finally, with the return to “normal” after 3 years of Covid, we are exciting to resume our 11th Annual Meeting and AGM (face-to-face rather than online mode) which will be held in Leiden, The Netherlands, sometime in September 2023. I, together with our BoD members, very much look forward to the gathering with our members and friends who have continuously support our Association.

Clara Bik-San Lau BPharm, PhD, MRPharmS
President of GP-TCM RA

The 11th GP-TCM RA Annual Meeting will be held in Leiden, the Netherlands on 18-20 September 2023. More details will be announced later.



New members of GP-TCM RA (January – February 2023)

Honorary Member	
Monique Simmonds	Royal Botanic Gardens, Kew, UK
Life Member	
Yuan Shiun Chang	China Medical University, Taiwan
Ordinary Members	
Kar Ho Lam	Chinese Medicine Regulatory Office, Department of Health of Hong Kong SAR
Edward Kennelly	City University of New York, USA
Student Member	
Tran Nhat Phong Dao	China Medical University, Taiwan
Institutional Member	
Institute of Chinese Medicine, The Chinese University of Hong Kong, Hong Kong SAR	

China Medical University, Taichung, Taiwan (Department of Chinese Pharmaceutical Sciences and Chinese Medicine Resources)	
Dalian Fusheng Natural Medicine Development Co. Ltd., China	大连富生天然药物开发有限公司 DALIAN FUSHENG NATURAL MEDICINE DEVELOPEMENT CO., LTD
Guangdong Provincial Hospital of Chinese Medicine, China	廣東省中醫院 GUANGDONG PROVINCIAL HOSPITAL OF CHINESE MEDICINE
Heilongjiang University of Chinese Medicine, China	
Hong Kong Baptist University, Hong Kong SAR, China (School of Chinese Medicine)	香港浸會大學 HONG KONG BAPTIST UNIVERSITY
Hutchison Whampoa Guangzhou Baiyunshan Chinese Medicine Co. Ltd., China	广州白云山和记黄埔中药有限公司
Infinitus (China) Company Ltd., China	INFINITUS 无限极
Institute of Chinese Medicine, The Chinese University of Hong Kong, Hong Kong SAR, China	
PuraPharm International (H.K.) Ltd., Hong Kong SAR, China	PuraPharm
Shanghai Hutchison Pharmaceuticals, China	Shanghai Hutchison Pharmaceuticals 上海和黄药业
Shanghai University of Traditional Chinese Medicine, China (School of Pharmacy)	
Zhejiang Chinese Medical University, China (School of Pharmaceutical Sciences)	
Zhengzhou University of Industrial Technology, China	

The Unique Charm in the Colorful Garden of Traditional Chinese Medicine ——2022 Vietnamese Version of the *Illustrated Chinese Materia Medica* (《中药材鉴定图典》)

In December 2022, Dr. Zhongzhen ZHAO (emeritus professor, left) and Dr. Hubiao CHEN (professor) of the School of Chinese Medicine (SCM) at Hong Kong Baptist University (HKBU), received a special gift from Hanoi——the 2022 Vietnamese version (ISBN 978-604-66-5390-5) published in Vietnam based on the 2014 *Chinese Medicinal Identification: An Illustrated Approach* (ISBN 978-091-21-1199-5) authored by them.

Back to 2009, together with their research team and relying on over 30-year investigation and practice, Dr. ZHAO and Dr. CHEN published a monograph on the Chinese medicinal macroscopic identification in traditional Chinese at Hong Kong, China. The text is composed of the history and principles of macroscopic identification followed by detailed descriptions of 428 common Chinese medicinals. It is a scientific elucidation of the traditional experiences and has been very popular since its publication. Its simplified Chinese, English, Japanese, Korean, German, and Russian versions were published respectively in mainland China, the United States of America, Japan, South Korea, Germany, and Russia since 2010.

Macroscopic identification refers to the medicinal authentication by examining gross morphological features and organoleptic properties. It is conducted by observing, touching, smelling, tasting, and/or testing with water or fire. Characteristics such as shape, size, color, texture, cross-section, smell and taste are usually used to identify the genuineness or to evaluate the quality of Chinese medicinal. Macroscopic identification is not an outdated but a simpler, faster and easier way. It in fact plays an important role in Chinese medicinal modernization and internalization.

Right now, relevant professionals are working on Portuguese, Spanish, and Malay versions of this *magnum opus* of the macroscopic identification.

'Traditional Chinese medicine (TCM) needs the world, and the world needs TCM', said Dr. ZHAO.

By Ping GUO, SCM, HKBU (January 4, 2023)

ii HKBU develops new aptamer drug for bone anabolic therapies

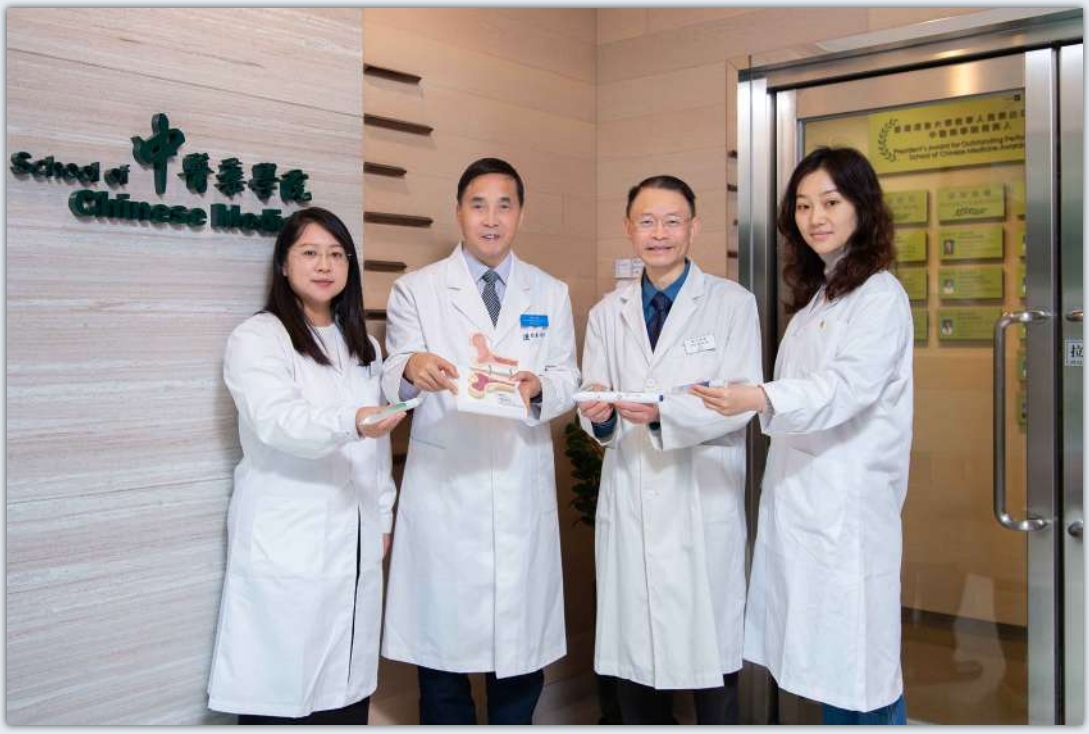
香港浸會大學 HONG KONG BAPTIST UNIVERSITY **PRESS RELEASE**

HKBU develops new aptamer drug for bone anabolic therapies

Monday, 19 December 2022

A research team led by Hong Kong Baptist University (HKBU) has identified a molecular target for bone anabolic therapies using a selected aptamer that serves as an inhibitor of sclerostin, a protein that prevents bone growth. The discovery offers hope for the development of an effective next-generation treatment for osteoporosis and osteogenesis imperfecta that is free of cardiovascular risk compared to the marketed antibody drug.

The research findings have been published in the international academic journals *Nature Communications and Theranostics*. The New drug is at the pre-clinical trial development stage, and the research team plans to start clinical trials in the US and on the Mainland in 2024.



(From left) Dr Yu Yuanyuan, Professor Lyu Aiping, Professor Zhang Ge, and Dr Wang Luyao, Post-Doctoral Research Fellow of the Law Sau Fai Institute for Advancing Translational Medicine in Bone and Joint Diseases at HKBU, develop the new aptamer drug for osteoporosis and osteogenesis imperfecta.

News and photo adapted from below:
https://www.hkbu.edu.hk/en/whats-new/press-release/2022/1219-hkbu-develops-new-aptamer-drug-for-bone-anabolic-therapies.html

News & analysis

From the analyst's couch

https://doi.org/10.1038/d41573-022-00167-2

Innovation in the Chinese pharmaceutical industry

Linghui Kong, Qiu Li, Kenneth I. Kaitin & Liming Shao

Over the past decade, China's pharmaceutical industry has made drug innovation a top priority. The driving factors include new and complex medical needs, rapid market expansion and regulatory system reform. Although China is currently the world's second-largest pharmaceutical market, most Chinese pharma companies are still in the early stages of innovative drug research and development (R&D). Here, we present a side-by-side comparison of the R&D pipelines of the top 20 Chinese pharma companies with 20 non-Chinese multinational pharma companies, to gain a clearer picture of where China's pharmaceutical industry stands globally in terms of innovative R&D. Details of the data and analyses are provided in the Supplementary information.

Company comparisons

Clinical-stage products. We first compared the number of innovative drugs brought to market by Chinese and multinational pharma companies over the 10-year period from 2012–2021. Many of the top 20 multinational pharma companies had over 15 approved drugs in this period, and the total brought to market was 313. Chinese companies, in comparison, had less than five approvals, with a total for the group of 31 during the same period (Supplementary Fig. 1).

However, the gap in the number of clinical-stage products between Chinese and multinational companies is smaller (Fig. 1). Two factors contribute to the rapid growth of clinical-stage products in China. First, leading traditional pharmaceutical companies, such as Jiangsu Hengrui Medicine and CSPC Pharmaceutical Group, are now shifting their focus from manufacturing to investment in the development of innovative drugs. Notably, the number of clinical-stage products in Hengrui Medicine's pipeline reached the median level of those of the top 20 global companies (66 products). Second, leading innovative R&D-driven pharmaceutical companies, such as BeiGene, Fosun Pharma and Sino Biopharm, have become the backbone of China's pharmaceutical industry.

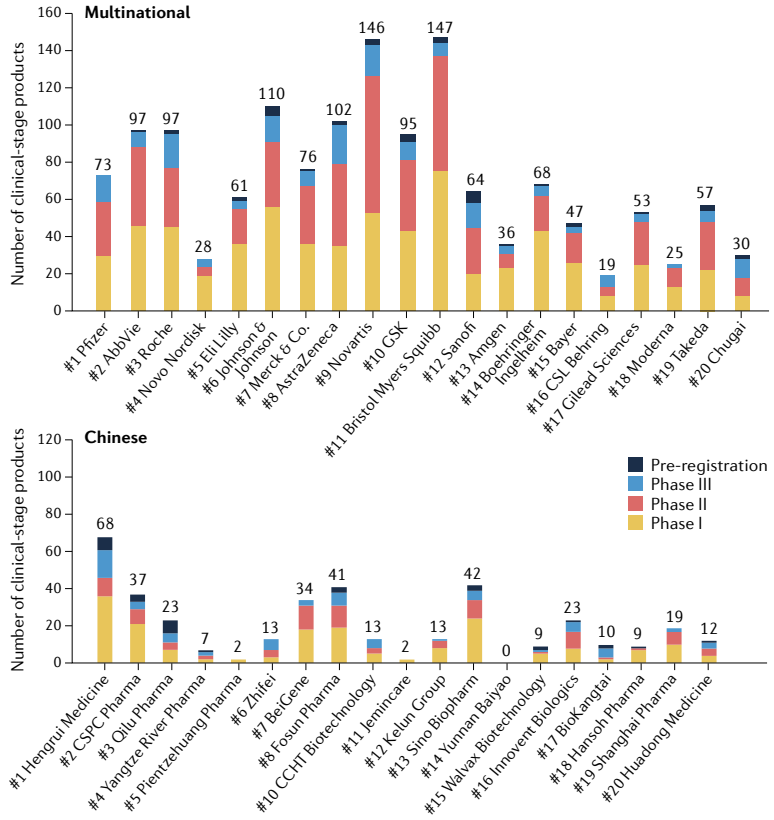


Fig. 1 | The landscape of clinical-stage products for the top 20 multinational non-Chinese pharma companies and the top 20 Chinese pharma companies. Bar plots show the number of products that are active in the particular clinical development phase for each company, based on their highest clinical phase as of 13 December 2021. See Supplementary information for details.

Therapeutic areas. Top multinational pharma companies have a more diverse product pipeline than Chinese companies, targeting a range of therapeutic areas. In contrast, many Chinese companies tend to focus on a single therapeutic area.

In terms of R&D focus, oncology leads in both Chinese and multinational pharma companies. For 12 out of the top 20 multinational companies, oncology is the largest therapeutic area in their clinical portfolio, accounting for 20–40% of all drug candidates. For Chinese companies, the proportion of oncology drugs is above 40% for nine of the top 20 firms, with a maximum of 83% for BeiGene (Supplementary Fig. 2). Drug candidates in infectious disease, neurology, immunology and respiratory areas are more commonly found in the pipelines of multinational companies than in Chinese companies.

Novel drug targets. We also assessed the relative level of innovation in the pipelines of multinational and Chinese companies by examining

News and photo adapted from link below:
https://www.nature.com/articles/d41573-022-00167-2

iv Macau Pharmacology Association hosted the 4th Sino-CPLP Symposium on Natural Medicine and Biodiversity Resources (SNMBR) & The International Forum on Research and Development of Traditional Chinese Medicine Industry (Macao) in the University of Macau on 3-5 Dec 2022.

澳門大學 UNIVERSIDADE DE MACAU UNIVERSITY OF MACAU

中葡中醫藥研究國際會議於澳大舉行

第四屆中國—葡語系國家天然藥物和生物多樣性資源研討會暨中醫藥研究與產業發展國際論壇（澳門）一連三日以線上結合線下的模式於澳大舉行，逾 200 位來自歐美、葡語系國家、內地及澳門的專家學者，就中藥理學研究的最新發展、澳門中醫藥產品在內地的發展和走向國際市場等話題展開探討，共舉行近 100 場講座與討論。

是次活動由澳門基金會贊助、澳門藥理協會及中國藥理學會主辦、澳大中華醫藥研究院中藥質量研究國家重點實驗室合辦，旨在為不同專業和領域的代表提供一個國際化學術交流平台。今屆會議以“天然藥物和生物多樣性”及“中醫藥研究與產業發展”為主題，聚焦藥理學、藥物化學等前沿研究，天然藥物、中藥、功能食品等研發與產業創新發展。延續 2018 年首屆會議響應“一帶一路”的倡議，今屆會議聚集世界各地的專家學者交流學術思想，包括葡萄牙、巴西、泰國、佛得角、荷蘭、美國、德國、澳大利亞、南非、柬埔寨、英國、烏茲別克等，推動國際性尤其是中葡科研合作。同時，貫徹 2021 年第三屆會議中提出的倡議，將澳門作為中醫藥走向世界的視窗，弘揚中醫藥文化傳統，探索中醫藥走向世界之路。會議還遵循國家及特區政府新出台的各項法規制度，積極聯絡大灣區各高校及企業，更首次與中國藥理學會合作，與中國工程院院士肖偉、丁健等內地近 30 名知名科學研究員，共同討論各領域中藥理學研究的最新發展，探索澳門中醫藥產品在內地的發展和走向國際市場的可能性，深化中醫藥產學研合作。

News and photo adapted from link below:
https://www.um.edu.mo/zh-hant/news-and-press-releases/presss-release/detail/54879/

V HKBU-led research discovers new therapeutic target for irritable bowel syndrome

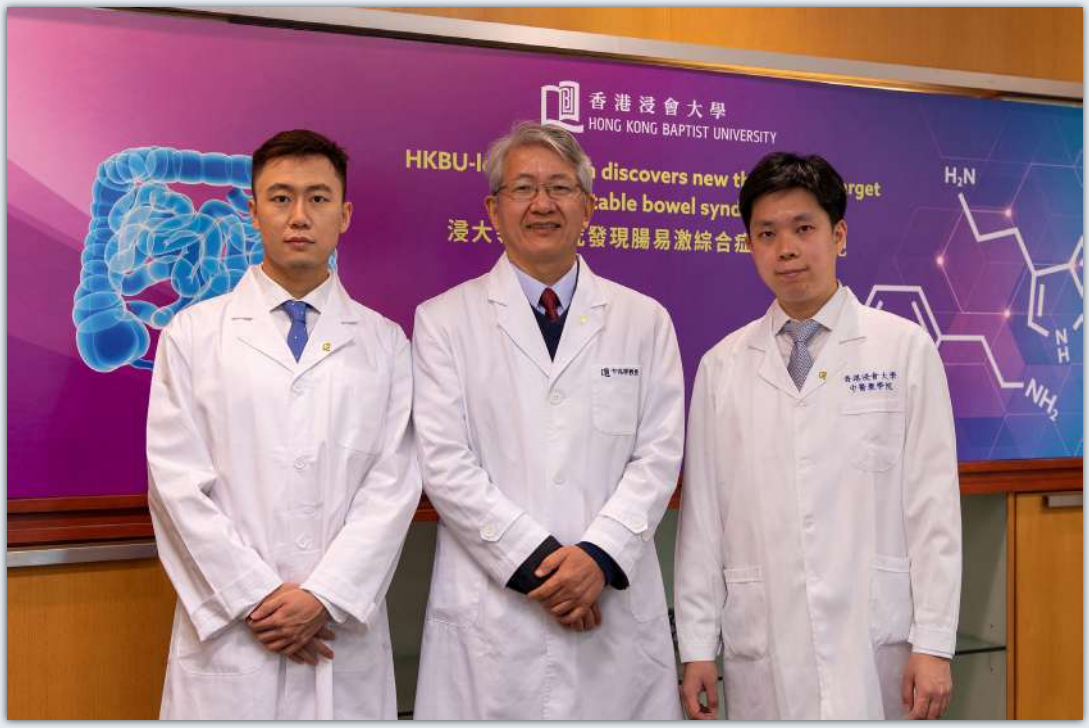
香港浸會大學 HONG KONG BAPTIST UNIVERSITY **PRESS RELEASE**

HKBU-led research discovers new therapeutic target for irritable bowel syndrome

Wednesday, 4 January 2023

A research study led by scientists from the School of Chinese Medicine (SCM) at Hong Kong Baptist University (HKBU) has shown for the first time that the human gut bacterium *Ruminococcus gnavus* is a major trigger factor of diarrhoea-predominant irritable bowel syndrome (IBS-D). Based on this discovery, a new therapeutic target for the disease's treatment was identified. The study also found that low-protein food items such as fresh fruits, vegetables and bread may help reduce the gut motility in IBS-D.

The research findings have been published in the internationally renowned scientific journal *Cell Host & Microbe*.



The research team of Professor Bian Zhaoxiang, Director of the Clinical Division and Tsang Shiu Tim Endowed Professor in Chinese Medicine Clinical Studies **(middle)**; Dr Xavier Wong Hoi-leong, Assistant Professor of the Teaching and Research Division **(right)**; and Dr Zhai Lixiang, Post-Doctoral Research Fellow **(left)** of SCM at HKBU, has shown for the first time that the human gut bacterium Ruminococcus gnavus is a major trigger factor of diarrhoea-predominant irritable bowel syndrome.

News and photo adapted from below:
https://www.hkbu.edu.hk/en/whats-new/press-release/2022/0104-hkbu-led-research-discovers-new-therapeutic-target-for-irritable-bowel-syndrome.html

vi FDA no longer needs to require animal tests before human drug trials

information as of January 3. … The available information does not change the risk-benefit assessment for this review."

People with Alzheimer's disease aren't routinely tested for *APOE4* because it hasn't so far guided diagnosis and treatment. Although some scientists had hoped FDA would rule against giving lecanemab to people with two copies of *APOE4*, the agency instead suggested people "consider testing" for *APOE4* status "to inform the risk of developing ARIA when deciding to initiate treatment." Gandy's hospital expects to offer testing for *APOE4* to those interested in lecanemab, to help them better gauge their risk from the therapy.

The drug label approved by FDA also recommends that anyone taking lecanemab have three MRIs over roughly the first 6 months of treatment to watch for side effects, as well as an MRI before beginning treatment. Some scientists had hoped the agency would require that lecanemab be enrolled in FDA's Risk Evaluation and Mitigation Strategies (REMS) program for medications with "serious safety concerns." REMS can require that physicians prescribing a new drug report side effects to FDA, that the drug be administered in qualified health care settings, and that doctors get training about which patients may be at highest risk of dangerous side effects.

FDA did note that it's requesting "expedited reporting" of any deaths in ongoing trials and deaths from significant brain hemorrhages in people who take lecanemab postapproval. University of Cincinnati neurologist Alberto Espay also worries about recipients of the antibody who may develop less severe ARIA. For at least some of them, he says, "I cannot imagine it's irrelevant or inconsequential."

Discussion of these safety concerns comes amid continued debate over lecanemab's benefits. On an 18-point cognition scale, those getting the drug on average declined 0.45 points less than those getting placebo after 18 months. Neurologists disagree over whether patients and caregivers would perceive this difference. "It's really on the edge" of what's meaningful, says Lon Schneider, a geriatric psychiatrist at the University of Southern California Keck School of Medicine. The drug is "approvable, but like many medications that are approved it leaves much to be desired."

Others, such as Snider, say the benefits may well be noticeable. On the part of the scale that assesses orientation, she notes, an individual who scores 0.5 "can still drive" and get around independently. "If you go to a one, you're going to start getting lost."

The Alzheimer's Association, which has come out in favor of lecanemab, celebrated FDA's thumbs-up. And in the lead-up to the agency's decision, more than 200 researchers and physicians signed an open letter that endorsed the drug. Nearly half are recent consultants or grant recipients of Eisai or Biogen, *Science* has found.

Espay, however, argues FDA had painted itself into a corner with an earlier decision. He says officials "are victims of an artificially low bar" they set in 2021 when they approved another anti-amyloid antibody, aducanumab, even though FDA's advisory committee had voted against approval and the evidence that the drug worked was weak. (Last month, a congressional report described that approval process as "rife with irregularities.")

> **"Like many medications that are approved, it leaves much to be desired."**
>
> **Lon Schneider**, University of Southern California Keck School of Medicine

Both drugs were approved under FDA's accelerated approval pathway, which allows for decisions based on "surrogate endpoints," biological measures thought to predict clinical benefits to patients. In May 2022, Eisai had asked FDA to approve lecanemab based on evidence that it is highly effective at clearing the brain of amyloid plaques, the same surrogate endpoint cited in the aducanumab approval.

Many of the same FDA officials reviewed both drugs, and in both cases, the lead biostatistician, Tristan Massie, expressed hesitations. In the summary report for lecanemab, Massie questioned whether the surrogate endpoint "is reasonably likely to predict change on the clinical outcome." His colleagues didn't agree. "The Division notes the issues that Dr. Massie has raised but, overall, the findings" on amyloid plaques "appear robust and persuasive," they wrote.

But it's unclear whether the Centers for Medicare & Medicaid Services (CMS), the federal agency that pays for many treatments for older Americans, will reimburse for lecanemab. In April 2022, CMS announced it would decline to reimburse for aducanumab, except in certain clinical trials, tanking its commercial prospects. CMS also said it would only consider covering such anti-amyloid antibodies after full FDA approval.

In a statement after FDA approved lecanemab, the Alzheimer's Association called that stance "harmful and unfair" and called on CMS to reverse its position. ■

With reporting by Charles Piller, whose work was supported by the *Science* Fund for Investigative Journalism.

ANIMAL RESEARCH

FDA no longer has to require animal testing for new drugs

Agency can rely on animal-free alternatives before human trials

By **Meredith Wadman**

New medicines need not be tested in animals to receive U.S. Food and Drug Administration (FDA) approval, according to legislation signed by President Joe Biden in late December 2022. The change—long sought by animal welfare organizations—could signal a major shift away from animal use after more than 80 years of drug safety regulation.

"This is huge," says Tamara Drake, director of research and regulatory policy at the Center for a Humane Economy, a nonprofit animal welfare organization and key driver of the legislation. "It's a win for industry. It's a win for patients in need of cures."

In place of the 1938 stipulation that potential drugs be tested for safety and efficacy in animals, the law allows FDA to promote a drug or biologic—a larger molecule such as an antibody—to human trials after either animal or nonanimal tests. Drake's group and the nonprofit Animal Wellness Action, among others that pushed for changes, argue that in clearing drugs for human trials the agency should rely more heavily on computer modeling, "organ chips," and other nonanimal methods that have been developed over the past 10 to 15 years.

But pro-research groups are downplaying the law, saying it signals a slow turning of the tide—not a tsunami that will remake the drug approval process overnight. Jim Newman, communications director at Americans for Medical Progress, which advocates for animal research, argues nonanimal technologies are still "in their infancy" and won't be able to replace animal models for "many, many years." FDA still retains tremendous discretion to require animal tests, he notes, and he doesn't expect the agency to change tack anytime soon.

News and photo adapted from link below:
https://www.science.org/content/article/fda-no-longer-needs-require-animal-tests-human-drug-trials

vii How a failed eczema treatment triggered an interest in traditional medicine

Grace Nambatya Kyeyune uses modern technology and clinical trials to help validate the efficacy and safety of products based on traditional medicine.

CAREER Q&A | 20 January 2023 Christopher Bendana

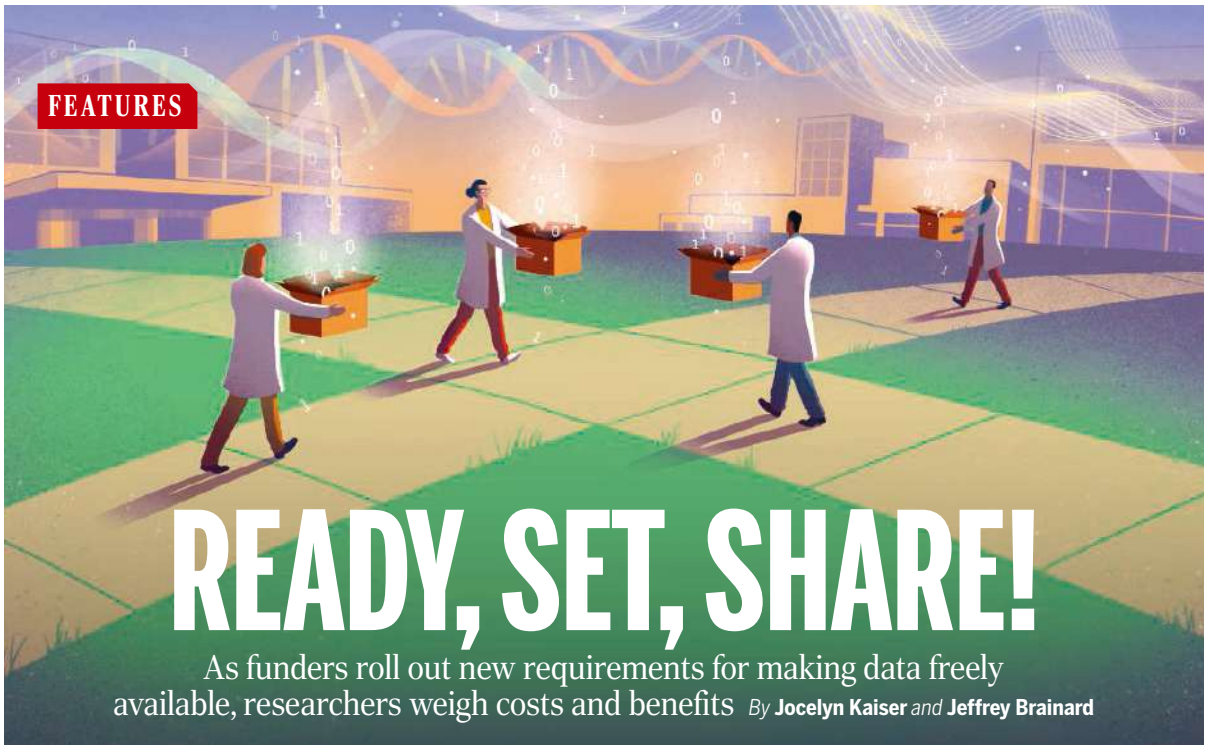
Grace Nambatya Kyeyune oversees research on natural products at the Natural Chemotherapeutics Research Institute in Kampala. Credit: Tumuhimbise Harrison

Grace Nambatya Kyeyune is a natural-products research scientist and director of research at the Natural Chemotherapeutics Research Institute (NCRI) in Kampala, which is a part of the Ugandan Ministry of Health that is dedicated to evaluating traditional medicines. She graduated with a bachelor's degree in chemistry from Makerere University in Kampala in 1984, and then joined the NCRI as a scientific officer in the chemistry division. But it was a bout of eczema, and a failed herbal treatment for it, that motivated her to dive deeper into medicinal chemistry, earning a master's in 1989 and then a PhD in 1993 at Loughborough University, UK. There, she learnt methods for extracting drugs from herbs and identifying their mode of action in humans. Now, she is one of the leading natural-products researchers in Uganda, overseeing the evaluation of medicinal plants for treatment efficacy and safety at the NCRI.

News and photo adapted from below:
https://www.nature.com/articles/d41586-023-00168-0

> Nature report from Uganda Natural Chemotherapeutics Research Institute: How a failed eczema treatment triggered an interest in traditional medicine

viiii READY, SET, SHARE!



READY, SET, SHARE!

As funders roll out new requirements for making data freely available, researchers weigh costs and benefits *By* **Jocelyn Kaiser** *and* **Jeffrey Brainard**

Physiologist Alejandro Caicedo of the University of Miami Miller School of Medicine is preparing a grant proposal to the U.S. National Institutes of Health (NIH). He is feeling unusually stressed because of a new requirement that takes effect this week. Along with his research idea, to study why islet cells in the pancreas stop making insulin in people with diabetes, he will be required to submit a plan for managing the data the project produces and sharing them in public repositories.

For his lab, that's a daunting task. Unlike neuroscience or genomics, Caicedo's field has no common platforms or standards for storing and sharing the kinds of data his lab generates, such as videos of pancreatic islet cells responding to a glucose stimulus. The "humongous" raw imaging files are currently stored in an on-campus database, notes Julia Panzer, a postdoctoral researcher in the lab. To protect patient privacy, the database is secured and not designed to provide access to outsiders. Sharing the data will mean uploading them somewhere else.

Caicedo supports the new NIH policy, acknowledging that "science will be so much more powerful" if data are freely shared. But he says his field isn't ready. And he's worried about the burden the new mandate will impose on his postdocs and graduate students. He can't afford to hire a data manager for his eight-person lab with his $600,000 in NIH grants, he says. "It's a very limited budget for a lot of people."

In the years ahead, many researchers will be struggling with similar issues. By 2025, new U.S. requirements for data sharing will extend beyond biomedical research to encompass researchers across all scientific disciplines who receive federal research funding. Some funders in the European Union and China have also enacted data-sharing requirements. The new U.S. moves are feeding hopes that a worldwide movement toward increased sharing is in the offing. Supporters think it could speed the pace and reliability of science.

Some scientists may only need to make a few adjustments to comply with the policies. That's because data sharing is already common in fields such as protein crystallography and astronomy. But in other fields the task could be weighty, because sharing is often an afterthought. For example, a study involving 7750 medical research papers found that just 9% of those published from 2015 to 2020 promised to make their data publicly available, and authors of just 3% actually shared, says lead author Daniel Hamilton of the University of Melbourne, who described the finding at the International Congress on Peer Review and Scientific Publication in September 2022. Even when authors promise to share their data, they often fail to follow through. Out of 21,000 journal articles that included data-sharing plans, a study published in *PLOS ONE* in 2020 found, fewer than 21% provided links to the repository storing the data.

Journals and funders, too, have a mixed record when it comes to supporting data sharing. Research presented at the September 2022 peer-review congress found only about half of the 110 largest public, corporate, and philanthropic funders of health research around the world recommend or require grantees to share data.

"Health research is the field where the ethical obligation to share data is the highest," says Aidan Tan, a clinician-researcher at the University of Sydney who led the study. "People volunteer in clinical trials and put themselves at risk to advance medical research and ultimately improve human health."

Across many fields of science, researchers' support for sharing data has increased during the past decade, surveys show. But given the potential cost and complexity, many are apprehensive about the NIH policy, and other requirements to follow. "How we get there is pretty messy right now," says Parker Antin, a developmental biologist and associate vice president for research at the University of Arizona. "I'm really not sure whether the total return will justify the cost. But I don't know of any other way to find out than trying to do it."

Science offers this guide as researchers prepare to plunge in.

ILLUSTRATION: DAVIDE BONAZZI/SALZMANART

"Sharing is important and it needs good practice."

News and photo adapted from link below:
https://www.science.org/content/article/ready-set-share-researchers-brace-new-data-sharing-rules

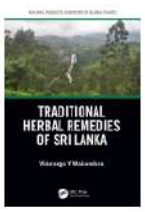
i

Natural Products Chemistry of Global Plants Series

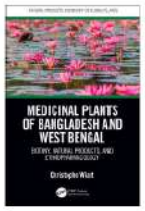
Series Editor: Clara Bik-San Lau

Founding Series Editor: Raymond Cooper

Details: https://www.routledge.com/Natural-Products-Chemistry-of-Global-Plants/book-series/CRcNPcGP

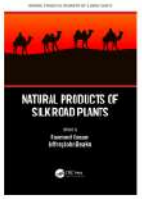


Traditional Herbal Remedies of Sri Lanka
Edited by Viduranga Y. Waisundara
March 2019 180pp
hb: 978-1-138-74308-3: £120.
www.routledge.com/9781138743083



Medicinal Plants of Bangladesh and West Bengal
Botany, Natural Products, & Ethnopharmacology
By Christophe Wiart, May 2019 302pp
hb:978-1-138-73516-3: £115.
www.routledge.com/9781138735163

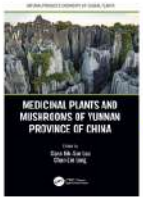
Brazilian Medicinal Plants
Edited by **Luzia Valentina Modolo, Mary Ann Foglio**
November 2019 358pp
hb:978-1-138-09375-1: £150
www.routledge.com/9781138093751



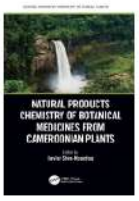
Natural Products of Silk Road Plants
Edited by **Raymond Cooper, Jeffrey John Deakin**
September 2020 304pp
pb: 978-0-367-18433-9: £74.99
www.routledge.com/9780367184339

Natural Products and Botanical Medicines of Iran
By Reza Eddin Owfi
October 2020-260DD
pb: 978-0-367-44173-9:£74.99
www.routledge.com/9780367441739

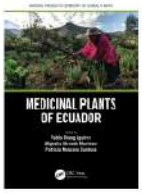
Medicinal Plants of Borneo
Edited by **Simon Gibbons, Stephen P. Teo**
May 2021 - 189pp
pb: 978-1-138-60107-9: £74.99
www.routledge.com/9781138601079



Medicinal Plants and Mushrooms of Yunnan Province of China
Edited by Clara Bik-San Lau, Chun-lin Long
June 2021- 322pp
pb: 978-1-032-02338-0: £99.99
www.routledge.com/9781032023380



Natural Products Chemistry of Botanical Medicines from Cameroonian Plants
Edited by **Xavier Siwe-Noundou**
September 2021 220pp, pb: 978-1-138-58142-5: £74.99
www.routledge.com/9781138581425



Medicinal Plants of Ecuador
Edited by Pablo Chong Aguirre, Migdalia Miranda Martinez
Patricia Manzano Santana
November 2022 228pp, pb: 978-1-032-00398-6: £59.99
www.routledge.com/9781032003986

Medicinal Plants of Laos
Edited by **Djaja Djendoel Soejarto, Bethany G. Elkington,**
Kongmany Sydara
April 2023 264pp, pb: 978-1-032-07777-2: £74.99
www.routledge.com/9781032077772

This unique book series focuses on the natural products chemistry of botanical medicines from different countries such as Turkey, Sri Lanka, Bangladesh, Vietnam, Brazil, China, S. Africa, Thailand, Borneo, Cameroon, Uganda and Madagascar, These fascinating volumes are written by experts from their respective countries. The series will focus on the pharmacognosy, covering recognized areas rich in folklore as well as botanical medicinal uses as a platform to present the natural products and organic chemistry. Where possible, the authors will link these molecules to pharmacological modes of action. The series intends to trace a route through history from ancient civilizations to the modern day showing the importance to man of natural products in medicines, in foods and a variety of other ways.

2023
Sept.
18-20

The 11th GP-TCM RA Annual Meeting

Date: 18-20/09/2023

Location: Leiden, The Netherlands

Women Scientists in Ethnopharmacological Research

Statistics show that women remain under-represented in areas of Science and this is also reflected by their under-representation on the editorial boards of scientific journals. In view of the commitment of Elsevier to address this disparity, and in line with our inclusive approach to embrace and promote diversity, the *Journal of Ethnopharmacology* (JEP) will be devoting a special issue to showcase and celebrate distinguished women researchers in the field of Ethnopharmacology. The special issue will be a collection of experimental and review papers submitted by female corresponding authors. We encourage submissions that are related to women's health, but this is not mandatory.

The Guest Editors for this special issue are our own women Associate and Managing Editors:

Associate Editors

- **Prof. Clara Bik-San Lau**
  The Chinese University of Hong Kong, China
- **Prof. Esra Küpeli Akkol**
  Gazi Universitv. Turkey
- **Prof. Patricia Dias Fernandes**
  Federal University of Rio de Janeiro, Brazil
- **Prof. Khozirah Shaari**
  University of Putra Malaysia, Malaysia
- **Prof. Ling-Dong Kong**
  State Key Laboratory of Pharmaceutical Biotechnology, Nanjing, China

Managing Editors

- **Dr. Sandra Combrinck**
  Tshwane University of Technology, South AfricaProf. Esra Küpeli Akkol
- **Dr. Gerda Fouche**
  University of Pretoria, South Africa
- **Dr. Maxleene Sandasi**
  Tshwane University of Technology, South Africa
- **Dr. Ilze Vermaak**
  Tshwane University of Technology, South Africa

Submission Information

Please submit your manuscript by July 31st, 2023.

Submission platform: Editorial Manager https://www.editorialmanager.com/jethno/default2.aspx

Please refer to the Guide for Authors to prepare your manuscript and select the correct article type when submitting your manuscript online. Both the Guide for Authors and the submission portal could be found on the Journal Homepage here:

Journal of Ethnopharmacology ScienceDirect.com by Elsevier

https://www.sciencedirect.com/journal/journal-of-ethnopharmacology?start_rank=701&cat0=agricultural-and-biological-sciences

You will be requested to upload a small photograph and short biography (max 200 words) for each author.

ii Journal: *Foods*

Topic	**Special Issue "Functional Food and Safety Evaluation"**
Deadline	15-June-2023
Details	https://www.mdpi.com/journal/foods/special_issues/O6W8R54B3T
Editor(s)	**Dr. Shun-Wan Chan** Faculty of Science and Technology, Technological and Higher Education Institute of Hong Kong **Dr. Huan Zhang** Department of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University, Hong Kong, China

iii Journal: *Processes*

Topic	**Special Issue "Natural Products for Drug Discovery and Development"**
Deadline	30-April-2023
Details	https://www.mdpi.com/journal/processes/special_issues/Natural_Drug
Editor(s)	**Antony Kam,** Nanyang Technological University, Singapore **Shining Loo,** Nanyang Technological University, Singapore **Simon Ming-Yuen Lee,** University of Macau, Macao, China

iv *Acta Materia Medica* Call for Papers

AMM Journal

Acta Materia Medica
A gold open access journal

Online ISSN: 2737-7946

Acta Materia Medica (eISSN 2737-7946) provides an open platform for rapid publication of the latest findings, approaches, and viewpoints related to all related areas of pharmacy and pharmaceutical sciences, including, but are not limited to, pharmacology, toxicology, pharmaceutics, medicinal chemistry, natural products, pharmacognosy, pharmaceutical analysis, pharmacokinetics, clinical pharmacy, pharmacoepidemiology, pharmacoeconomics and pharmacy management.

Article types accepted

- Research articles
- Review articles
- Databases
- Mini reviews
- Commentaries
- Editorials
- Short communications
- Case report articles
- Study protocols.

Why publish with *Acta Materia Medica*?

- **No** Author submission or article processing charges.
- Author retains the copyright to their article.
- Fast peer review.
- Fast publication online after article acceptance.
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- Author profile and research group promotion via Twitter, Facebook, WeChat and Weibo.

Submissions	Articles can be submitted to *Acta Materia Medica* using ScholarOne, the online submission and peer review system. Registration and access are available at https://mc04.manuscriptcentral.com/ammed
Editorial Board	https://amm-journal.org/index.php/editorial-board/
Queries	Any enquiries about the journal can be sent to editorialoffice@amm-journal.org

For more information about the journal, including article submission guidelines and how to register for free content-alerting services, please visit: https://amm-journal.org/

Acta Materia Medica is now open for submissions via ScholarOne (https://mc04.manuscriptcentral.com/ammed).

There are **no** author submission or article processing fees.

Please visit https://amm-journal.org/ to learn more about the journal.

Editorial Board: https://amm-journal.org/index.php/editorial-board/

Twitter: @AMM_journal

澳門大學
UNIVERSIDADE DE MACAU
UNIVERSITY OF MACAU

i

Full/Associate/Assistant Professor in Chinese Medicine,
Institute of Chinese Medical Sciences. University of Macau, China

Details: https://career.admo.um.edu.mo/icms_cm_faa_07_2022/

ii

Full/Associate/Assistant Professor in Chinese Medicine
Institute of Chinese Medical Sciences. University of Macau, China

Details: https://career.admo.um.edu.mo/icms_cm_faa_03_2022/

iii

Full/Associate/Assistant Professor in Pharmaceutical Regulatory Sciences
Institute of Chinese Medical Sciences. University of Macau, China

Details: https://career.admo.um.edu.mo/icms_prs_faa_03_2022/

香港中文大學
The Chinese University of Hong Kong

iv

Research Assistant(s), Institute of Chinese Medicine,
The Chinese University of Hong Kong

Details: https://cuhk.taleo.net/careersection/cu_career_non_teach/jobdetail.ftl?job=210002PD&tz=GMT%2B08%3A00&tzname=Asia%2FMacau

v

Postdoctoral Fellow(s), Institute of Chinese Medicine,
The Chinese University of Hong Kong

Details: https://cuhk.taleo.net/careersection/cu_career_non_teach/jobdetail.ftl?job=210002PE&tz=GMT%2B08%3A00&tzname=Asia%2FMacau

香港浸會大學
HONG KONG BAPTIST UNIVERSITY

vi

Research Assistant Professor, School of Chinese Medicine,
Hong Kong Baptist University

Details: https://hro.hkbu.edu.hk/index.php?page_id=6&job_id=6572&f=job_details

vii

Post-Doctoral Research Fellow,
Centre for Chinese Herbal Medicine Drug Development,
School of Chinese Medicine, Hong Kong Baptist University

Details: https://hro.hkbu.edu.hk/index.php?page_id=6&job_id=6742&f=job_details

viii

Research Assistant Professor (Chinese Herbal Medicine and Gut Microbiology),
Centre for Chinese Herbal Medicine Drug Development,
School of Chinese Medicine, Hong Kong Baptist University

Details: https://hro.hkbu.edu.hk/index.php?page_id=6&job_id=6740&f=job_details

ix

Research Assistant Professor (Gut Immunology),
Centre for Chinese Herbal Medicine Drug Development,
School of Chinese Medicine, Hong Kong Baptist University

Details: https://hro.hkbu.edu.hk/index.php?page_id=6&job_id=6739&f=job_details

x

Research Assistants (Basic Science),
Centre for Chinese Herbal Medicine Drug Development,
School of Chinese Medicine, Hong Kong Baptist University

Details: https://hro.hkbu.edu.hk/index.php?page_id=6&job_id=6741&f=job_details

xi

Research Coordinator,
Centre for Chinese Herbal Medicine Drug Development,
School of Chinese Medicine, Hong Kong Baptist University

Details: https://hro.hkbu.edu.hk/index.php?page_id=6&job_id=6736&f=job_details

xii

Senior Research Assistant (Clinical),
Centre for Chinese Herbal Medicine Drug Development,
School of Chinese Medicine, Hong Kong Baptist University

Details: https://hro.hkbu.edu.hk/index.php?page_id=6&job_id=6738&f=job_details

Student's Corner

Postgraduate Opportunities

Opportunities in Europe

Germany

https://academicpositions.com/ad/cologne-graduate-school-ageing-research-cga/2022/12-fully-funded-phd-positions/181690?utm_source=facebook&utm_medium=cpc&utm_campaign=scm-cga-092022+med-hi

https://www.humboldt-foundation.de/en/apply/sponsorship-programmes/humboldt-research-fellowship

https://www.daad.de/en/study-and-research-in-germany/

Postgraduate Opportunities

Opportunities around the world

Gratz - Austria

https://agristok.net/2022/09/03/phd-fully-funded-position-in-plant-molecular-biology-at-university-of-graz-in-austria/

International

https://jobs.msd.com/gb/en/job/R197090/Scientist-Medicinal-Chemistry/?utm_source=linkedin&utm_campaign=job-share&utm_medium=social-share

Denmark

https://www.dtu.dk/om-dtu/job-og-karriere/ledige-stillinger/job?id=d2e2591d-1d14-43ff-8557-6e6ce0fc3a58

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Postgraduate Opportunities

Opportunities around the world

Australia

University of Melbourne
https://lnkd.in/dxjXv-JJ8

Ireland

Irish Research Council
https://research.ie/funding/

Singapore

https://lnkd.in/dra7MV8

Scientists wanting to go into business – fully Undergraduate/ Postgraduate/ PhD graduate degrees in Management – Basic degree multi centre with significant funding

– **VERY INTERESTING PROGRAMME**

https://www.spjain.ae

UK: register for job alerts

https://charnwoodmolecular.livevacancies.co.uk/#/

Freely Accessible Learning Material

Interesting articles

Studying abroad

https://www.science.org/content/article/doing-research-abroad-felt-lonely-heres-how-i-made-friends?utm_campaign=SciMag&utm_source=Social&utm_medium=LinkedIn

Intellectual property

like

https://micheonip.com/intellectual-poperty-non-disclosure-agreement/?utm_campaign=Michelson&20Institute%20for%20intellectual%20Property&utm_content=212335938&utm_medium=social&utm_source=linkedin&hss_channel=lcp-42772499

Freely Accessible Learning Material

Online learning Platforms

Fantastic resource. Courses from all disciplines. Free to study. Accreditation available at a cost. Well worth exploring

- https://www.edx.org/
- https://englishforuniversity.com/resources/
- https://owl.purdue.edu/

Webinar- How To Avoid Plagiarism?
Webinar to give information re plagiarism

- https://www.youtube.com/watch?v=sHhGY4c61v4
- https://www.youtube.com/watch?v=33R43YF9DzI

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Freely Accessible Learning Material

Free Lecture series

Integrative Medicine Research Lecture Series

Information and resources from the National Center for Complemenary and Integrative Health, U.S. National Institutes of Health (NIH).

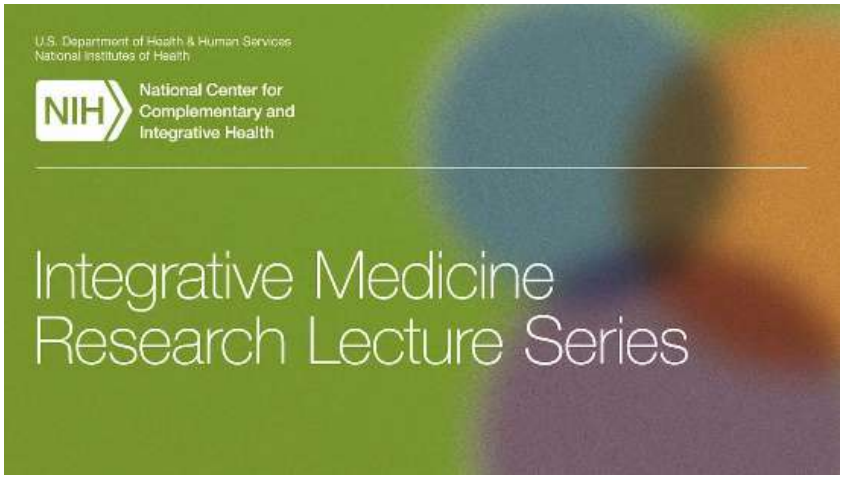
- www.nccih.gov

GREAT SELECTION OF WEBINARS

- https://www.herbalgram.org/news/webinar-page/

KEEP AN EYE ON

https://www.pharmacognosy.us/
https://www.herbalgram.org



https://www.nccih.nih.gov/news/events/imlectures?nav=li

Great Selection of Webinars - From the Sustainable Herbs Programme

Botanical Supply Sustainability in the Time of COVID

- https://vimeo.com/457513678

Plants, People & Culture: The Science of Ethnobotany

- https://vimeo.com/460565477

The Business Case for Sustainability

- https://vimeo.com/465447452

Cross-cultural Understanding of Local Herbal Knowledge and Chinese traditional Daodi Materia Medica

- https://vimeo.com/668389245

Sourcing Botanicals and Quality Control: A Conversation with Michael Heinrich and Anthony Booker

- https://vimeo.com/642467580

Introducing the WildCheck Report: Assessing Risk & Opportunities of Trade in Wild Plant Ingredients

- https://vimeo.com/704246800

Certifications as a Path to Sustainability? A Conversation about the Opportunities and Limits of Certification

- https://vimeo.com/540314958

AND MANY MORE

https://vimeo.com/457513678

Buchi Mini series of webinars – covering Drug Discovery Using Natural Resources

The speaker: Prof. Dr. Elfahmi

There is a separate registration requirement for each webinar.

https://cloud.infohub.buchi.com/drug-discovery/with-prof-elfahmi?utm_source=email1&utm_medium=email&Id=00Q3X00001MfiqzUAB&id_mc=34316261&utm_campaign=gl-2022-webinars-mini-webinars-with-prof-elfami&cloudpage_id=4865&cloudpage_id2=&cloudpage_id3=

Episode 1: Drug Discovery and Development Workflow

Discover four essential steps in drug discovery and development: literature review & preliminary screening, biology development, physiochemical & pharmaceutical development. Gain a process overview for the isolation of active compounds from plants using bioactivity-guided fractionation.

Episode 2: Concentration of Natural Products

Explore the workflow for processing of natural compounds: sampling & crushing, extraction & concentration; fractionation & purification; structure identification and product packaging. Learn about extract/fraction concentration through solvent removal by rotary evaporation. Find challenges and solutions to efficiency, foaming, bumping, plus optimization tips for temperature difference, pressure values, flask size, rotation speed and condenser loading.

Episode 3: Purification Techniques for Natural Products

Learn fundamentals and protocols for relevant methods, including liquid-liquid fractionation (phase separation), winterization, microporous resin chromatography, flash and vacuum liquid chromatography, radial chromatography, crystallization, preparative column chromatography. See it in action with a case study on the purification of asiaticoside & madecassoside from *Centella asiatica.*

Episode 4: Past, Present and Future of Herbal Medicines

Gain a comprehensive overview of the history of plant use in drugs and pharmacy, including milestones in the development of herbal medicines. See current global use, benefits and challenges facing alternative or traditional medicine. Look into the future of herbal medicine development with predictions on how this branch will develop.

International Conferences

Conference information

Lots of interesting and relevant conferences to be found at these links.

Traditional medicine Conferences in 2023

- https://waset.org/traditional-medicine-conferences-in-2023

Phytochemistry Conferences

- https://waset.org/phytochemistry-conferences

2nd Global Summit on Traditional and Alternative Medicine (GSTAM2023) will be held in Osaka, Japan during April 24-26, 2023

- https://www.thescientistt.com/2023/traditional-medicine-summit

International Conferences

GA Conference Trinity College Dublin Ireland

NatPro, the trinity Centre for natural product Research, is privileged to host the 71st International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA) at Trinity College Dublin, taking place from 2nd to 5th July 2023.

https://www.tcd.ie/natpro/events

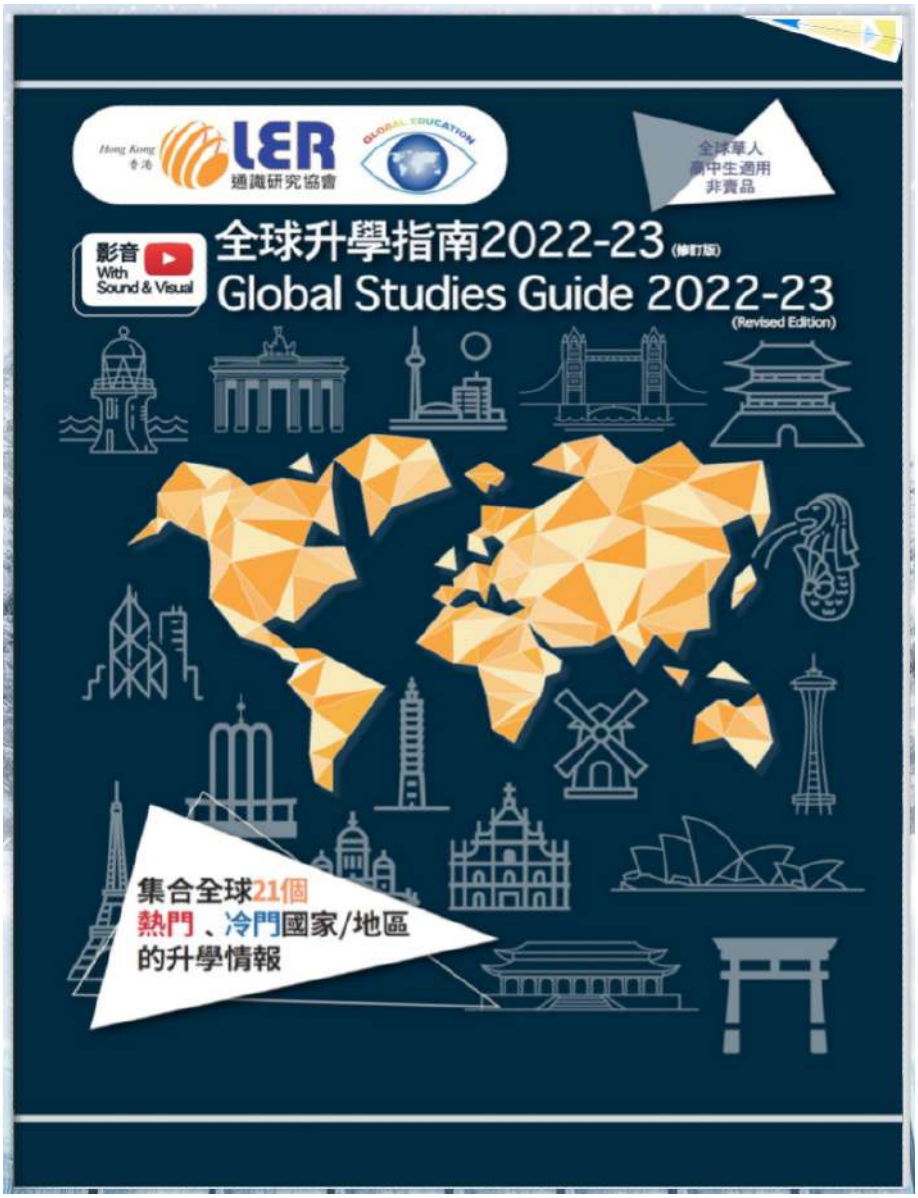
This will be the first time the GA Congress will be held in Ireland and will involve four days of international science and networking opportunities through a program of plenary lectures, keynote presentations, short lectures, workshops and exhibitions. Further, it will be an opportunity to visit the Emerald Isle!

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

China Scholarship Council (CSC) – Trinity College Dublin Joint Scholarship Programme

Details: https://www.tcd.ie/study/international/scholarships/Postgraduate/csc.php

Global Studies Guide 2022-23



Details: https://online.fliphtml5.com/pwsrn/pjso/

香港中文大學中醫學院
School of Chinese Medicine
The Chinese University of Hong Kong

ii

PhD in Chinese Medicine

School of Chinese Medicine ,

The Chinese University of Hong Kong

Details: http://www.scm.cuhk.edu.hk/en-gb/programs/research-master-doctoral-program/phd-in-chinese-medicine

香港浸會大學 HONG KONG BAPTIST UNIVERSITY
School of 中醫藥學院 Chinese Medicine

iii

Doctor of Philosophy (PhD) in Biomedical Sciences/ Chinese Medicine/ Translational Medicine/ Pharmacy in Chinese Medicine

School of Chinese Medicine, Hong Kong Baptist University

Details: https://scm.hkbu.edu.hk/en/education/research_postgraduate_programmes/index.html#list/0

HKU Med LKS Faculty of Medicine The University of Hong Kong 香港大學李嘉誠醫學院
中醫藥學院

iv

PhD in Chinese Medicine

School of Chinese Medicine, The University of Hong Kong

Details: https://scm.hku.hk/Views/Programme/English-MPhilPhD.html

澳門大學 UNIVERSIDADE DE MACAU UNIVERSITY OF MACAU
SKL QRCM-UM 中藥質量研究國家重點實驗室（澳門大學） Laboratório de Referência do Estado para Investigação de Qualidade em Medicina Chinesa (Universidade de Macau) State Key Laboratory of Quality Research in Chinese Medicine (University of Macau)
中華醫藥研究院 Instituto de Ciências Médicas Chinesas Institute of Chinese Medical Sciences

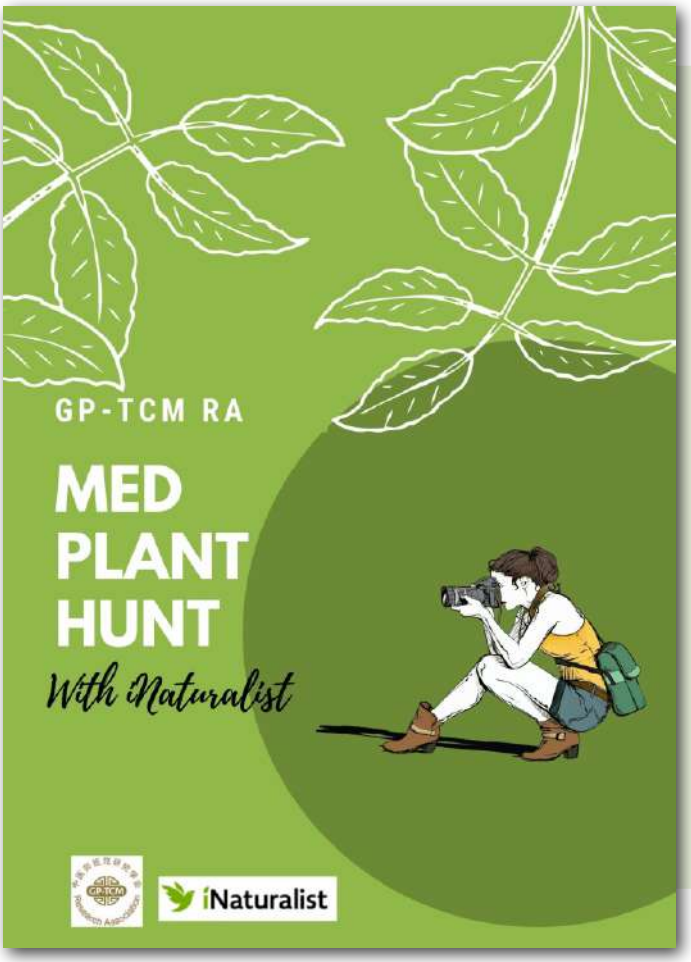
v

Doctoral Degree in Biomedical Science

Institute of Chinese Medical Sciences, University of Macau

Details: https://sklqrcm.um.edu.mo/doctoral-degree-in-biomedical-science/

Med Plant Hunt with iNaturalist



In order to promote conservation of wildlife, especially wild medicinal plant and TCM herbs, and their environment, a challenge on **"Med Plant Hunt"** is launched.

The aim of challenge is to encourage our members to identify and recognize the morphological features of living wild medicinal plant in nature.

Eligibility:

Med Plant Hunt is free and open to all GP-TCM RA members.

Entries must abide by the guidelines below.

Rules & Guidelines:

iNaturalist is a nature app to help you identify the animals and plants around you and provide a platform to connect you and experts to share about nature. Users can record and share their observations and the findings can enrich scientific data repositories like the Global Biodiversity Information Facility.

Create your own account and share your wild medicinal plant observation to mobile iNaturalist app or iNaturalist website.

How to enter:

1.Complete the registration form with iNaturalist user ID.

2.Make the observation of living wild medicinal plant around you with iNaturalist app/website.

3.With the submitted iNaturalist ID, your observation for entry will be automatically recorded and results will be announced in the coming issue of the newsletter.

How to join

For inquiries about Med Plant Hunt, please send email to gptcm_medplanthunt@outlook.com

Registration form

How to upload

Med Plant Hunt with iNaturalist

Prizes:

- **Adventurous Observer: The highest number of observed species**
- **TCM Photographer: Best photo shoot**
- **Lucky Observer: Observe rare species**

The selected entries will be published on the next issue of the newsletter. An electronic certificate and **a complementary gift** (e.g. water bottle ideal for outdoor activities, sponsored by Macau Pharmacology Association) will be given.

澳門藥理協會

MED PLANT HUNT
With iNaturalist

Med Plant Hunt Registration Form

Name: Email:

Affiliation: Country or region:

iNaturalist account information
User name:
User email:

(Please send the form to gptcm_medplanthunt@outlook.com for registration)

Online registration | How to join | Registration form | How to upload

Spear-shaped atractylodes (*Atractylodes lancea,* Asteraceae, 苍术 , left) and large-headed atractylodes (*Atractylodes macrocephala,* Asteraceae, 白术 , right)

Being an aromatic medicinal that transforms dampness, the dried rhizome of spear-shaped atractylodes (atractylodis lanceae rhizoma) is bitter and warm. It dries dampness and is indicated for dampness obstructing the spleen and stomach manifested as poor appetite, epigastric distension, nausea, vomiting, diarrhea, fatigue, white and greasy tongue coating. It also dispels wind-dampness and is indicated for wind-dampness obstruction syndrome and exterior conditions due to wind-cold and dampness. Although atractylodis lanceae rhizoma from Jiangsu province is traditionally considered superior in quality, the medicinal crops currently cultivated in Hubei province on a large scale enjoy a good reputation as well.

Being a tonifying medicinal, the dried rhizome of large-headed atractylodes (atractylodis macrocephalae rhizoma) is bitter, sweet and warm. It tonifies the spleen and is indicated for spleen qi deficiency manifested as lack of appetite, diarrhea, and general weakness. It also dries dampness, promotes water metabolism, stops sweating, and calms the fetus, and is indicated for fluid accumulation, spontaneous sweating, and restless fetus disorder. Atractylodis macrocephalae rhizoma is entirely from medicinal crops widely cultivated in Zhejiang (most famous production region), Anhui, Jiangxi, and Hunan provinces.

Atractylodis rhizoma is not a suitable pharmaceutical name because it may refer to atractylodis lanceae rhizoma (as in Chinese pharmacopoeia) or atractylodis macrocephalae rhizoma (as in Japanese pharmacopoeia). In addition, different scientific names have been adopted to reveal the botanical origins of these 2 medicinals. Among them, *Atractylodes ovata*, *Atractylodes japonica* and *Atractylodes chinensis* are treated as synonyms of *Atractylodes lancea* according to Plants of the World Online (https://powo.science.kew.org/).

苍术

山坡草地见林中
茎立叶坚常建功
近看枝头花色素
入方岂止是祛风

白术

多年草本未齐腰
纸叶滑茎无寂寥
常见彤花头上戴
郎中落笔胃逍遥

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).

Just click here to enjoy the video: https://uofmacau-my.sharepoint.com/:v:/g/personal/jesskuok_umac_mo/EV0_Mt3MY8BOrIpqpvpvXasBQtqxE1688LwUcGsRcGP2PA?e=hdSvdJ

Spear-shaped atractylodes (*Atractylodes lancea,* Asteraceae, 苍术 , left) and large-headed atractylodes (*Atractylodes macrocephala,* Asteraceae, 白术 , right)

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