



# Good Practice in Traditional Chinese Medicine Research Association 中医药规范研究学会



July-August 2025 Newsletter

## Editor-in-chief

Mei Wang

([mei.wang@subiomedicine.com](mailto:mei.wang@subiomedicine.com))

## Deputy Editor

Simon Ming Yuen Lee

([simon-my.lee@polyu.edu.hk](mailto:simon-my.lee@polyu.edu.hk))

## Section Editor

-Chinese Materia Medica

Ping Guo

([s193231@hkbu.edu.hk](mailto:s193231@hkbu.edu.hk))

## Executive Editor

Jess Kit Ieng Kuok

([kuokkitieng@gmail.com](mailto:kuokkitieng@gmail.com))



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## **i Highlights of the 13<sup>th</sup> Annual Meeting of the Good Practice in Traditional Chinese Medicine Research Association and AGM 2025**

The 13<sup>th</sup> Annual Meeting of The Good Practice in Traditional Chinese Medicine Research Association (in association with Federation of Traditional Chinese Medicine Practitioners (FTCMP) and UK Centre Of Chinese Medicine (CCMUK)) was successfully held in Royal Botanic Garden, Kew, London, UK from July 24 to 27, 2025. This year, the Annual Meeting was hosted by Prof. Monique Simmonds (Past-President). As a general practice, the Board of Directors (BoD), coming from different parts of the world, took the opportunity to hold a face-to-face BoD meeting on the afternoon of July 22. During this meeting, BoD members, together with the chairs and co- chairs of the 7 Interest Groups participated, and several items were discussed, including the future development of GP-TCM RA. The 1.5-hour BoD meeting was followed by a dinner gathering.

### **(1) Photos taken during the BoD meeting**



The four-day Annual Meeting took place at the Jodrell Laboratory inside Royal Botanic Garden, Kew, with the theme “One health- potential for the integration of Chinese Medicine”. The opening ceremony started with the welcome remarks from Prof. Monique Simmonds, host of the meeting and Past-President of GP-TCM RA, followed by a speech from Dr. Mei Wang, the President of GP-TCM RA. A total of over 90 participants from across the world attended the conference, with 47 abstract submissions and poster presentations. The program also included 5 keynote lectures delivered by Prof. Amala Soumyanath (Oregon Health & Science University, USA), Prof. Lie-Fen Shyur (Academia Sinica, Taiwan), Dr. Emiel van Galen (Chair of the Committee on Herbal Medicinal Products, EMA), Prof. Nicola Robinson (BoD member of GP-TCM RA) and Prof. Lixing Lao (Virginia University of Integrative Medicine, USA).



In addition to the 7 Interest Groups organizing a total of 26 lectures and on hot topics under the following categories: Quality Control (chaired by Prof. Rudolf Bauer and Prof. Monique Simmonds), Pharmacology & Toxicology (chaired by Prof. Clara B.S. Lau, Prof. Lie-Fen Shyur and Prof. Qihe Xu), Clinical Studies (chaired by Prof. Lidan Zhong and Dr. Xiao-Yang Hu), Regulatory Aspects and Industry (chaired by Dr. Li-Ping Qu, Prof. Gerhard Franz and Mr. Abraham Chan), Acupuncture–Moxibustion and Meridians (chaired by Prof Nicola Robinson and Prof. Jianping Liu), Publication (chaired by Dr. Myeong Soo Lee, Prof. De-An Guo and Prof. Thomas Efferth) and Clinical Practice Guidelines (chaired by Dr. Chris Chan, Prof. Vivian Taam Wong and Dr. Wendy Wong).

## (2) Prof. Monique Simmonds during the opening remark



## (3) Dr. Mei Wang during the opening remark





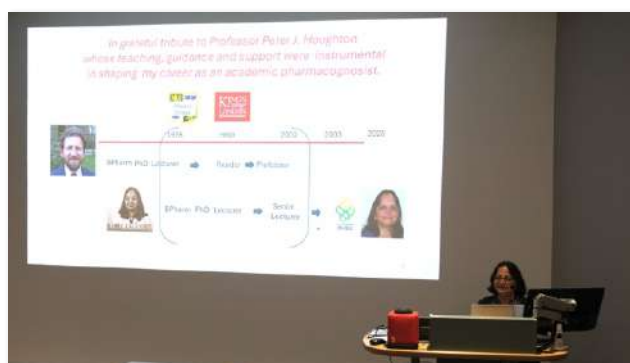
#### (4) The group photo taken at Royal Botanic Garden, Kew



On Day 1, the first Keynote talk in tribute to Prof. Peter Houghton was delivered by Prof. Amala Soumyanath and at the end of the session, Mrs Houghton was also invited to make tribute and share valuable photographs of Prof. Peter Houghton, while Prof. Clara Lau (Past President) and Dr. Qihe Xu (BoD member) announced

The Peter Houghton Award by The King's Centre for Integrative Chinese Medicine, King's College London to support young scientists. During lunch time of day 1, an Early Career Participants Lunch Gathering with Prof. Clara Lau (Past President), Dr. Mei Wang (President) and Prof. Simon Lee (President-Elect of GP-TCM). Dr. Mei Wang took this opportunity to introduce GP-TCM RA to the students and young researchers and each early career participant had the opportunity to introduce themselves and provide feedback on how GP-TCM RA could facilitate their research career development. At the end of day 1, the conference dinner took place at the The Orangery inside Kew Gardens. Gifts were given to all dinner participants, and Dr. Mei Wang thanked the gift sponsors ( Davines Group) for their support of the Annual Meeting.

#### (5) Prof. Amala Soumyanath during the keynote lecture



Introducing The Peter Houghton Award



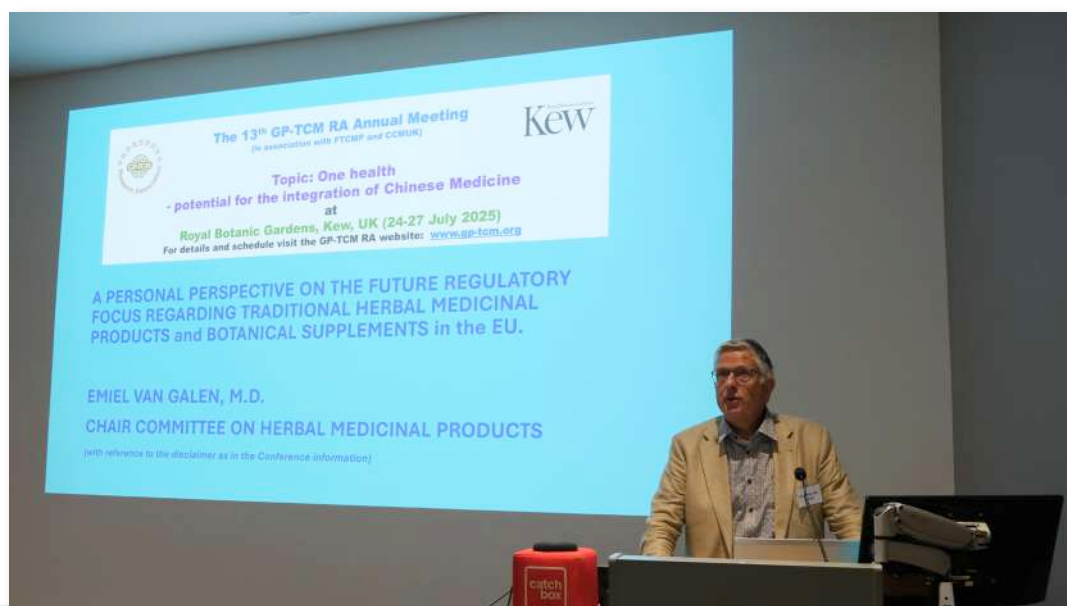
### (6) Mrs Houghton sharing



### Prof. Lie Fen Shyur during the keynote lecture



### Dr. Emiel van Galen during the keynote lecture





### (9) Prof. Nicola Robinson during the keynote lecture

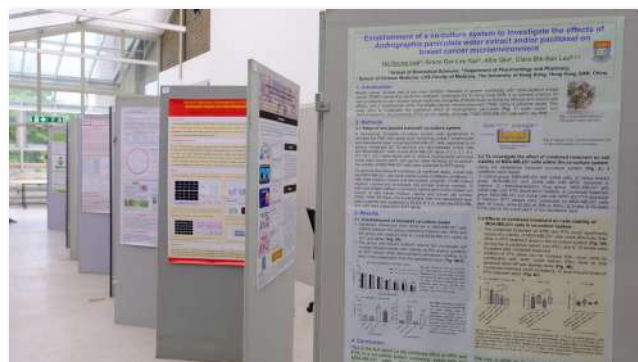
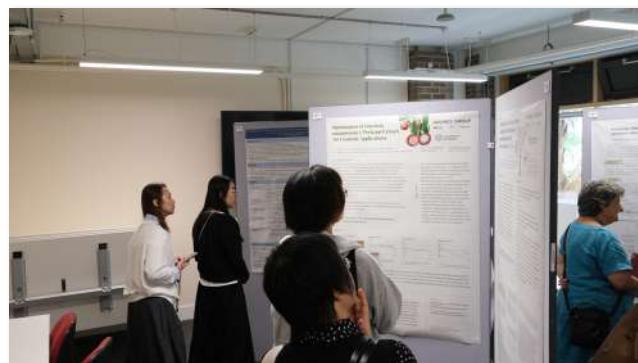


### (10) Prof. Lixing Lao during the keynote lecture





### (11) Photos taken during tea breaks, poster presentations and exhibition booths.



### (12) Early Career Participants Lunch Gathering





**(13) Photos taken during the conference dinner at The Orangery inside Kew Gardens.**





## (14) Tours of Kew Collections



At the end of each day, different tours of Kew collections were organised for participants to enjoy visiting the Herbarium, Fungarium and the Economic Botany Collections at Kew Garden. On day 2, during the two-minute flash poster presentations 10 abstracts were selected for brief presentations by students and young researchers and the AGM was held where Dr. Mei Wang presented the President's report, introducing the objectives and mission of GP-TCM RA, the latest membership statistics and the online workshops and other achievements of GP-TCM RA in 2025 followed by Prof. Simon Lee then presented the Secretary-General's report and Dr Tai-Ping Fan presented the Treasurer report. During the AGM, Dr. Mei Wang announced that the 14<sup>th</sup> Annual Meeting would be held at the Nanyang Technological University (NTU), in Singapore possibly in July 2026 (exact date to be confirmed), and the host, Prof. Lidan Zhong (BoD member) also presented the resources and facilities in NTU for organising the Annual Meeting in 2026. At the end of day 2, a drink reception and poster viewing session was held to allow participants networking.





### (15) Photos taken during the AGM



Dr. Mei Wang presented the President's report



Prof. Simon Lee Secretary-General's report



Dr Tai-Ping Fan presented the Treasurer report

This Annual Meeting is organised in association with FTCMP and CCMUK, and on Day 3, additional participants joined us, then the Annual Meeting commenced with an Award Ceremony and Closing remarks. During the Award presentation. Three Travel Awards were given to the top three submitted abstracts by students, and book awards will be presented to the presenters of the top 10 selected abstracts. In addition, the Poster Awards (sponsored by The Hung Chi Ching Charitable Fund) were given out as 1<sup>st</sup> prize 2<sup>nd</sup> prize and 3<sup>rd</sup> prize to the awardees. Finally, at the closing ceremony, GP-TCM RA President Dr. Mei Wang thanked the host Prof. Monique Simmonds, Ms. Rachel Wakling and Ms. Charlotte Meggitt and the Conference Organising Team at Kew Garden for hosting this year Annual Meeting. Dr Mei Wang also thanked the Platinum Sponsor: PuraPharm International (H.K.) Ltd. Gold Sponsors: Phoenix Medical, CR Jiangzhong;

Travel award sponsor: The Hung Chi Ching Charitable Fund; Book Sponsor: Taylor & Francis Group, Informa UK Limited; Sponsor: HL Suppherb and Gift Sponsors: Davines Group.



Dr. Mei Wang presented Honorary Member certificates to Prof. Clara B.S. Lau and Prof. Michael Heinrich.



## (16) Award Ceremony





## (16) Award Ceremony



## (17) Closing remarks



Dr. Mei Wang thanked the host Prof. Monique Simmonds, Ms. Rachel Wakling, Ms. Charlotte Meggitt and the Conference Organising Team at Kew Garden.



## Acknowledgements



Phoenix Medical



CR Jiangzhong



The Hung Chi Ching Charitable Fund



Taylor &amp; Francis Group, Informa UK Limited

**DAVINES GROUP**

Davines Group





## i Congratulations to Dr Mei Wang for receiving the Award for International Science and Technology Cooperation during the Sichuan Science and Technology Award conference

### 点赞！这些中医药项目和科技工作者获省科学技术奖！

四川中医药 2025年08月28日 17:31 四川

8月28日上午，四川省科学技术奖励大会在成都举行，会上公布了2024年度四川省科学技术奖获奖名单。赵凌荣获四川省杰出青年科学技术创新奖。王梅(Mei Wang)、阿列克谢·沃瑞克哈特斯基(Alexei Verkhatsky)荣获四川省国际科学技术合作奖。9个项目获四川省科学技术进步奖，其中，一等奖2项，二等奖3项，三等奖4项，一起来看~

#### 2024年度四川省 国际科学技术合作奖

中文名	国籍	合作单位	提名者
王梅 (Mei Wang)	荷兰	四川省中医药科学院	省中医药局
阿列克谢·沃瑞克哈特斯基 (Alexei Verkhatsky)	英国	成都中医药大学	省中医药局

News and photo adapted from link below:

[https://mp.weixin.qq.com/s/EUhri\\_6N\\_zPeIVkZuzaJKQ](https://mp.weixin.qq.com/s/EUhri_6N_zPeIVkZuzaJKQ)



## ii Congratulation to Prof. Linda Zhong on her election as President of the International Society for Traditional, Complementary and Integrative Medicine Research (ISCMR)



NTU School of Biological Sciences

We are delighted to congratulate Associate Professor Linda Zhong, who is also the Director of Biomedical Sciences and Chinese Medicine, School of Biological Sciences (SBS), on her election as President of the International Society for Traditional, Complementary and Integrative Medicine Research (ISCMR).

This recognition from an international, multi-disciplinary scientific organisation highlights her outstanding contributions to research and leadership in the field of traditional and integrative medicine. Her achievement brings pride to SBS and underscores the global impact of our faculty.

Join us in congratulating Assoc. Prof. Zhong on this remarkable milestone!

News and photo adapted from link below:

[https://www.linkedin.com/posts/ntusbs\\_ntusbs-oursbs-proudmoment-activity-7364219768922390528-M7zH?utm\\_medium=ios\\_app&rcm=ACoAAAEi3AgBbl2iGyKQG\\_DwwU3GEmkNBjajw8&utm\\_source=social\\_share\\_video\\_v2&utm\\_campaign=copy\\_link](https://www.linkedin.com/posts/ntusbs_ntusbs-oursbs-proudmoment-activity-7364219768922390528-M7zH?utm_medium=ios_app&rcm=ACoAAAEi3AgBbl2iGyKQG_DwwU3GEmkNBjajw8&utm_source=social_share_video_v2&utm_campaign=copy_link)



New members of GP-TCM RA (July-August 2025)

Ordinary Members	
Sushil Kumar CHAUDHARY	Institute of Bioresources and Sustainable Development (IBSD), India
Banaz JALIL	University College London, UK
Zhaolan LIU	Beijing University of Chinese Medicine, China
Beverley de VALOIS	University of Bristol, UK
Zhongping YAO	The Hong Kong Polytechnic University, Hong Kong SAR, China
Min ZHANG	King's College London, UK



## Current Corporate Members

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 DEVELOPMENT CO., LTD
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
PuraPharm International (H.K.) Ltd., Hong Kong SAR, China	 PuraPharm
Shanghai Hutchison Pharmaceuticals, China	 Shanghai Hutchison Pharmaceuticals 上海和黄药业

## Current Institutional Members

Chengdu University of Traditional Chinese Medicine, China	
China Medical University, Taichung, Taiwan (Department of Chinese Pharmaceutical Sciences and Chinese Medicine Resources)	
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
Shaanxi University of Technology, China	
Shanghai University of Traditional Chinese Medicine, China	
The University of Hong Kong, Hong Kong SAR, China (Department of Pharmacology and Pharmacy, LKS Faculty of Medicine)	 HKU Med LKS Faculty of Medicine Department of Pharmacology & Pharmacy 香港大學藥理及藥劑學系
Zhejiang Chinese Medical University, China (School of Pharmaceutical Sciences)	
Zhengzhou University of Industrial Technology, China	

*Special Commemorative Issue of School of Chinese Medicine, Hong Kong Baptist University.*

i

## HKBU releases first global Chinese medicine research analytics report showing publication output tripled in 10 years



香港浸會大學  
HONG KONG BAPTIST UNIVERSITY

**PRESS RELEASE**

### HKBU releases first global Chinese medicine research analytics report showing publication output tripled in 10 years

Thursday, 7 August 2025

Hong Kong Baptist University (HKBU), in collaboration with the global academic data analytics company Elsevier, has released a global research analytics report *Evolving Legacy: Decoding the Scientific Trajectory of Chinese Medicine*. Using scientific metrics, the report reveals systematically for the first time the comprehensive global trends and process of modernisation in Chinese medicine research. The report covers over 200,000 Chinese medicine-related publications from 2014 to 2023, providing a clear portrait of Hong Kong's international standing and contributions in Chinese medicine research with a data-driven approach.



*Professor Lyu Aiping, Vice-President (Research & Development), HKBU, shares the initiatives of HKBU to promote the research and development of Chinese medicine.*

News and photo adapted from link below:

<https://www.hkbu.edu.hk/en/whats-new/press-release/2025/0807-hkbu-releases-first-global-chinese-medicine-research-analytics-report-showing-publication-output-tripled-in-10-years.html>



香港浸會大學  
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PRESS RELEASE

## An innovative approach to teaching Chinese medicine gynaecology

31 Jul 2025



*The team from the Clinical Division of the School of Chinese Medicine comprises Professor Zhang Chunling, team leader (2nd left), Professor Li Xiaoguang (2nd right), Professor Wang Yurong (1st right) and Dr Chin Wing-ye (1st left).*

One couple longing to become parents have sought professional help for over 10 years. Another underwent several assisted reproductive treatments to no avail. Female patients experience intense period pain for years, struggling to carry out daily tasks. At the Chinese medicine gynaecology clinic, every patient represents a difficult life journey.

The Gynaecology Team from the Clinical Division of the School of Chinese Medicine at HKBU understands that while clinical excellence is important, the practitioner must put patient-centred care first to truly heal the patient's body and mind. Therefore, the team aims to nurture students to become capable and empathetic Chinese medicine practitioners by teaching them the professional knowledge in syndrome differentiation and clinical skills, while also fostering empathy and a sense of social responsibility.

News and photo adapted from link below:

<https://www.hkbu.edu.hk/en/whats-new/discover-hkbu/2025/July-2025/an-innovative-approach-to-teaching-chinese-medicine-gynaecology.html>

## SCM celebrates success at Silicon Valley Festival with 1 gold medal and 1 silver medal

香港浸會大學  
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Chinese Medicine

NEWS

### SCM celebrates success at Silicon Valley Festival with 1 gold medal and 1 silver medal

14 August 2025

The School made a remarkable debut at the Silicon Valley International Invention Festival, organised by the International Federation of Inventors' Associations, which took place from 8 to 10 August in the United States. Two projects stood out among innovations from over 30 countries and regions, winning one gold medal and one silver medal.

#### Gold Medal

"Metabolic modulation of intratumoral cholesterol with engineered bacteria for the treatment of colorectal cancer" led by Professor Wong Hoi-leong Xavier, Professor of Teaching and Research Division (CMTR)



*Professor Wong Hoi-leong Xavier (left) and his PhD student Mr Wu Jiayan (right).*

#### Silver Medal

"Development of Justicia Chinese Medicinal Plants as Antiviral Veterinary Products" led by Professor Zhang Hongjie, Associate Dean (Teaching and Learning) and Chair Professor of CMTR



*Professor Zhang Hongjie*

News and photo adapted from link below:

<https://scm.hkbu.edu.hk/en/news-and-events/news/2025/20250814-SCM-celebrates-success-at-Silicon-Valley-Festival-with-1-gold-medal-and-1-silver-medal.html>

## Professor Zhang Ge leads team to develop novel pulmonary fibrosis treatment with funding from Pneumoconiosis Compensation Fund Board



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School of Chinese Medicine

NEWS

### Professor Zhang Ge leads team to develop novel pulmonary fibrosis treatment with funding from Pneumoconiosis Compensation Fund Board

4 August 2025

Professor Zhang Ge, Associate Dean (Research), has successfully secured a grant of HK\$1.8 million from the Pneumoconiosis Compensation Fund Board for supporting a project entitled "A next-generation CTGF inhibitors to suppress pulmonary fibrosis in pneumoconiosis". This project, led by Professor Zhang, is a collaborative effort of researchers from SCM, The Chinese University of Hong Kong, Shenzhen University General Hospital and The Second Affiliated Hospital of Shantou University Medical College.



*Professor Zhang Ge (centre) has successfully secured a grant of HK\$1.8 million from the Pneumoconiosis Compensation Fund Board.*

News and photo adapted from link below:

<https://scm.hkbu.edu.hk/en/news-and-events/news/2025/20250804-Professor-Zhang-Ge-leads-team-to-develop-novel-pulmonary-fibrosis-treatment-with-funding-from-Pneumoconiosis-Compensation-Fund-Board.html>

V

## SCM organised the “2025 Symposium on Autophagy, Aging, Cancer and Neurodegeneration: Therapeutic Potential of Chinese Medicine”



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NEWS

### SCM organised the “2025 Symposium on Autophagy, Aging, Cancer and Neurodegeneration: Therapeutic Potential of Chinese Medicine”

1 August 2025

SCM successfully hosted the “2025 Symposium on Autophagy, Aging, Cancer and Neurodegeneration: Therapeutic Potential of Chinese Medicine” on 28 July 2025. This symposium delves into the significant role of autophagy in aging and aging-related cancer and neurodegenerative diseases, particularly Alzheimer’s disease and Parkinson’s disease, while exploring the therapeutic potential of Traditional Chinese Medicine (TCM) in modulating autophagy for cancer treatment and neuroprotection.



*Speakers and SCM members share insights at the symposium.*

News and photo adapted from link below:

<https://scm.hkbu.edu.hk/en/news-and-events/news/2025/20250801-SCM-organised-the--2025-Symposium-on-Autophagy,-Aging,-Cancer-and-Neurodegeneration--Therapeutic-Potential-of-Chinese-Medicine--.html>

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## Professor Xavier Wong secures HK\$1.48M HMRF grant for anti-obesity medication clinical trial



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School of Chinese Medicine

NEWS

### Professor Xavier Wong secures HK\$1.48M HMRF grant for anti-obesity medication clinical trial

29 July 2025

A research team led by Professor WONG Hoi-leong Xavier secures a grant of HK\$1.48 million from the Health and Medical Research Fund (HMRF), administered by the Food and Health Bureau. The funding will support a pioneering clinical trial titled "Efficacy and Safety of Artesunate Treatment for Patients with Obesity: A Randomised Double-Blind, Placebo-Controlled Pilot Study".

The project aims to evaluate the clinical efficacy and safety of artesunate, a compound derived from traditional Chinese medicine, as a potential treatment for obesity. Artesunate's unique pharmacological profile and emerging evidence of its metabolic benefits position it as a promising candidate for addressing obesity and its related complications. In preclinical animal studies published in Nature Communications, Professor Wong's research team demonstrated that artesunate significantly reduced body weight, improved metabolic health (including enhanced insulin sensitivity and better cholesterol profiles), and suppressed appetite in obese mice and non-human primates, all without adverse effects. Building on these encouraging results, the team is now advancing to human trials, with the goal of validating artesunate's potential as a safe and effective therapy for obesity and its associated conditions.



News and photo adapted from link below:

<https://scm.hkbu.edu.hk/en/news-and-events/news/2025/20250729-Professor-Xavier-Wong-secures-HK-1-48M-HMRF-grant-for-anti-obesity-medication-clinical-trial.html>

## vii Exciting News: Professor Bian Zhaoxiang Selected for the “Qihuang Scholar 2024”

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NEWS

### Exciting News: Professor Bian Zhaoxiang Selected for the “Qihuang Scholar 2024”

23 July 2025

The National Administration of Traditional Chinese Medicine (NATCM) announced the list of inductees for the prestigious “Qihuang Scholar 2024” on 11 July. Professor Bian Zhaoxiang, Associate Vice-President (Clinical Chinese Medicine) and Chair Professor in Chinese Medicine, School of Chinese Medicine has been selected for this esteemed honour. This recognition is a testament not only to Professor Bian’s exceptional stature in the field of Chinese medicine but also affirms the School’s commitment to excellence in research and talent cultivation within the discipline.

As a renowned research scientist in the field of gut dysbiosis, Professor Bian has dedicated tremendous effort to advancing education, clinical research, and community service in Chinese medicine since joining the School in 2001. During the COVID-19 pandemic, Professor Bian led the HKBU Chinese medicine team in active anti-epidemic endeavours, making significant contributions to the wellbeing of the Hong Kong community and underscoring the important role of Chinese medicine.



News and photo adapted from link below:

<https://scm.hkbu.edu.hk/en/news-and-events/news/2025/20250723-Exciting-News--Professor-Bian-Zhaoxiang-Selected-for-the--Qihuang-Scholar-2024-.html>

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A new book by HKBU staff, Professor Zhao Zhongzhen, Professor Emeritus and Professor Chen Hubiao, Professor of the Teaching and Research Division



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NEWS

## New book by staff

15 July 2025



### Chinese Medicinal Identification:

An Illustrated Approach (Arabic edition)

### ISBN:

ISBN 978-9948-727-996

### Editor-in-Chief:

Professor Zhao Zhongzhen, Professor Emeritus and Professor Chen Hubiao, Professor of the Teaching and Research Division

News and photo adapted from link below:

<https://scm.hkbu.edu.hk/en/news-and-events/news/2025/20250715-New-book-by-staff.html>

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## New hospital seen key for HK to be bridgehead for TCM internationalization

CHINADAILY

HONG KONG

NEWS > Hong Kong > Content

Published: 16:12, August 14, 2025 | Updated: 09:17, August 15, 2025

## New hospital seen key for HK to be bridgehead for TCM internationalization

By Luo Weiteng



In this undated file photo, a practitioner of traditional Chinese medicine at Pok Oi Hospital in Hong Kong treats a patient via acupuncture. (PROVIDED TO CHINA DAILY)

Hong Kong is gearing up to welcome its first Chinese medicine hospital by year-end, positioning the city a bridge between tradition and modernity in healthcare. A former Hong Kong health chief and experts envision landmark initiatives and international collaborations that could bring traditional Chinese medicine (TCM) from its ancient roots to the forefront of the global stage.

News and photo adapted from link below:

[https://www.chinadailyasia.com/hk/article/617907?fbclid=IwQ0xDSwML3i5leHRuA2FlbQlXMQABHheOyc0VOXOy3TpqJkSlNuQiM44ujaoKrMy60vbAnlDvHcEU0golhncPFpa\\_aem\\_oRuq5p6jYuhM-YgZLGBouw](https://www.chinadailyasia.com/hk/article/617907?fbclid=IwQ0xDSwML3i5leHRuA2FlbQlXMQABHheOyc0VOXOy3TpqJkSlNuQiM44ujaoKrMy60vbAnlDvHcEU0golhncPFpa_aem_oRuq5p6jYuhM-YgZLGBouw)

## i

## NIH announces end to funding for animal-only studies

By Brian Buntz | July 7, 2025

The National Institutes of Health announced on Monday that the biomedical agency would no longer award funding to new grant proposals solely relying on animal testing. The policy was unveiled at the FDA & NIH Workshop on Reducing Animal Testing in comments from Dr. Nicole Kleinstreuer, Acting NIH Deputy Director for Program Coordination, Planning and Strategic Initiatives.

"I'm delighted to announce today that all new NIH funding opportunities moving forward should incorporate language on consideration of NAMS," Kleinstreuer stated during the workshop, referring to New Approach Methodologies, a suite of modern alternatives including computer modeling, AI and 'organs-on-a-chip' technologies. "NIH will no longer seek proposals exclusively for animal models."

News and photo adapted from link below:

<https://www.drugdiscoverytrends.com/ni-h-announces-end-to-funding-for-animal-only-studies/>

## ii

## New approach methodologies: EU regulatory horizons

nature reviews drug discovery

## Abstract

New approach methodologies (NAMs) have the potential to progressively transform medicines development by reducing reliance on animal testing while increasing the relevance of nonclinical data to patients. However, achieving regulatory acceptance of NAMs demands enhanced collaboration, clear guidance and continuous, science-based adaptation of the regulatory environment to accommodate emerging innovation.



News and photo adapted from link below:

[https://www.nature.com/articles/d41573-025-00053-7?utm\\_source=nature\\_etoc&utm\\_medium=email&utm\\_campaign=CONR\\_41573\\_AWA1\\_GL\\_DTEC\\_054CI\\_TOC-250801&utm\\_content=20250801](https://www.nature.com/articles/d41573-025-00053-7?utm_source=nature_etoc&utm_medium=email&utm_campaign=CONR_41573_AWA1_GL_DTEC_054CI_TOC-250801&utm_content=20250801)

# Insights into new approach methodology innovation: an EMA perspective

By Mariana Edwards, Oriane Blanquie & Falk Ehmann

## News & analysis

sci-business briefs

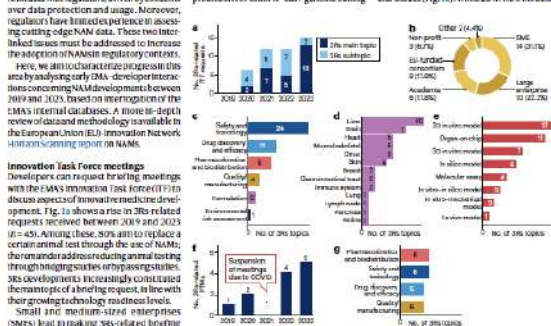
<https://doi.org/10.1038/s41573-025-00052-8>

## Insights into new approach methodology innovation: an EMA perspective

**N**ew approach methodology (NAM) in medicinal product development may be incorporated into the assessment of the safety, efficacy and quality of a medicinal product to reduce or replace the use of animals, for example, organ-on-chips composed of human cells could be used to predict the risk of organ-specific safety issues of a medicinal product.

At present, the use of NAMs in regulatory submissions to the European Medicines Agency (EMA) is limited. This is owing to barriers such as developers' caution in sharing NAM data with regulators, driven by concerns over data protection and usage. Moreover, regulators have limited experience in assessing cutting-edge NAM data. These two interlinked issues must be addressed to increase the adoption of NAMs in regulatory contexts.

Here, we aim to characterize progress in this area by analysing early EMA-developer interactions concerning NAM development between 2019 and 2023, based on interrogation of the EMA's internal databases. A more in-depth review of advanced methodology is available in the European Union (EU) Innovation Network Horizon Scanning report on NAMs.

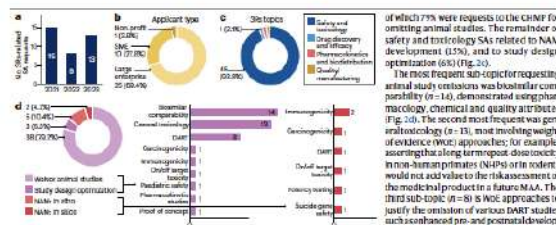


**Fig. 1 | Characterization of EMA-related Scientific Advice (SA) procedures at the European Medicines Agency between 2019 and 2023. a**, Number of SA procedures containing life-related requests and applicant type. **b**, Drug development area. **c**, Sub-topics discussed in SA. **d**, Breakdown of sub-topics discussed in SA.

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## News & analysis



**Fig. 2 | Characterization of EMA-related Scientific Advice (SA) procedures at the European Medicines Agency between 2019 and 2023. a**, Number of SA procedures containing life-related requests and applicant type. **b**, Drug development area. **c**, Sub-topics discussed in SA. **d**, Breakdown of sub-topics discussed in SA.

are preclinical, more innovative NAM types also feature, including organ-on-chip, 3D in vitro models (including spheroids and organoids), in silico models and combined in vitro–in silico models (Fig. 1c).

**Portfolio and Technology Meetings** Portfolio and Technology Meetings (PTMs) are informal discussions held between the EMA and large pharmaceutical companies only. They identify issues in product portfolio development, capture emerging therapeutic technologies and anticipate regulatory needs. There has been an increasing number of PTMs including 363 topics, from one in 2019 to five in 2023 (Fig. 1f).

The most frequently discussed topics were platform approaches for ongoing programmes to reduce animal studies ( $n=9$ ), including in chemistry, manufacturing and control (CMC) ( $n=3$ ) and for rare diseases ( $n=2$ ) (Fig. 1g). Although the emphasis are small, it appears that large pharmaceutical companies emphasize 363 innovation in CMC more than academics and SMEs, as indicated by the relative prevalence of quality/manufacturing topics in PTMs (Fig. 1g) compared to academia/CMC-led ITT interactions (Fig. 1c). These included animal-free manufacturing of advanced therapeutic medicinal products ( $n=2$ ), CMC platform ( $n=5$ ), and novel viral testing assay for company-wide application.

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of which 77% were requests to the CHMP for omitting animal studies. The remainder of safety and toxicology SAs related to NAM development (15%), and to study design optimization (6%) (Fig. 2c).

The most frequent sub-topics for requesting animal study omissions was biobank comparability ( $n=14$ ), demonstrated using pharmacology, chemical and quality attributes (Fig. 2d). The second most frequent was general toxicology ( $n=13$ ), most involving weight of evidence (WoE) approaches; for example, assessing that a long-term potent toxicity in non-human primates (NHPs) or rodents would not add value to the risk assessment of the medicinal product in a future MAA. The third sub-topic ( $n=8$ ) was WoE approaches to justify the omission of various DART studies such as combined pre- and postnatal development, embryofetal developmental toxicity, maternal-fetal development and fertility studies, justifications for both general toxicology and DART study omission included leveraging data from approved products, expected low toxicity, lack of target expression in reproductive tissues, low/no target expression in organ model, low translational value of animal model for investigated safety risk, and leveraging data from lower animal species to omit NHP studies. Further topics discussed are shown in Fig. 2d.

The seven NAMs proposed in four SAs (Fig. 2f) support WoE justifications for omission of specific safety and toxicology studies mostly by testing for specific risks identified for a particular product and indication. This helps implement the 363 by reaching regulator-developer consensus on WoE-justified omissions of animal studies, especially specific safety and toxicology studies.

**Mariana Edwards<sup>1</sup>, Oriane Blanquie<sup>2,3</sup> & Falk Ehmann<sup>1</sup>**  
<sup>1</sup>European Medicines Agency (EMA), Amsterdam, Netherlands; <sup>2</sup>Department of Dermatology, University Medical Center of the Saarland, Saarland University, Homburg, Germany; <sup>3</sup>EMA, rue de la Woluwe 62, 1200 Brussels, Belgium

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**Additional information** **Overview** The overview presented in this article is the personal view of the authors and may not be endorsed or quoted as being made or validated by reflecting the position of the European Medicines Agency or any of its committees or working parties.

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<https://www.nature.com/articles/d41573-025-00052-8>

## Why Names Matter: Demystifying the Nomenclature of Plants and Herbal Substances. HerbalGram. 2025 Jan 1(142).



# WHY NAMES MATTER:

## DEMYSIFYING THE NOMENCLATURE OF PLANTS AND HERBAL SUBSTANCES

*What's in a name? That which we call a rose by any other name would smell as sweet.*

—William Shakespeare's "Romeo and Juliet" (Act II, Scene 2)<sup>1</sup>

By Bob Allkin, PhD, and Kristina Patmore

Plants for Health  
Royal Botanic Gardens, Kew  
Richmond, Surrey, UK

### 1. Introduction

In Shakespeare's play, Juliet pleads that Romeo is the same person regardless of his name, and *HerbalGram* readers likely need no reminder that a label offers no guarantee of a product's content. This article explains and illustrates why it is important to pay close attention to the names used when communicating about objects, places, and concepts. We encourage readers to clearly differentiate between names (the labels we use) and the objects they refer to (the plants or herbal substances).

Names are necessary to communicate verbally and when searching for information or exchanging data. The validity of research papers, effectiveness of regulations, and credibility of herbal products all rely on using meaningful, unambiguous, and precise plant names. Finding published information about a plant requires knowing the different names that previous authors may have used.

Communicating precisely, unambiguously, and comprehensively about plants or herbal substances is not as straightforward as one might imagine. People often assume, for example, that others will interpret names as they do, but a person's preferred common name for a plant may reflect their birthplace, profession, or cultural background. As with other elements of language, the meaning of names can change and be used inconsistently even within the same language: they may vary from place to place (e.g., "lift" and "elevator") or between generations. Regulators, scientists, pharmacists, and industry members who

Rose, *Rosa* spp.  
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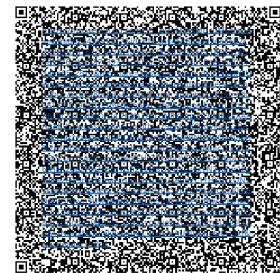
Research group from The Affiliated Guangzhou Hospital of TCM of Guangzhou University of Chinese Medicine, Guangzhou, China have recently published “ CARE extension guideline for acupuncture case reports”

## IF 9.8 段玉婷团队：首个基于 CARE 指南针对针刺病例报告的国际标准化报告标准

Frontiers-CMCR 中医药研究前沿 2025年07月15日 09:43 美国



News and photo adapted from link below:



### 研究主要发现及亮点

本研究是首个基于 CARE 指南针对针刺病例报告的国际标准化报告标准。该报告标准不仅整合了中西医视角，还兼顾不同流派（如中医针灸、韩医、日医等）与国际多样性。

CARE for Acupuncture 遵循 EQUATOR 协作网报告标准研发程序进行制定，我们希望它能够指引针灸领域的作者、编辑、同行评议专家和读者提高针刺病例报告稿件的透明度、完整性和准确性。

### 研究背景及研究目的

现有国际病例报告报告标准是 CARE，但其缺乏针刺特异性，针刺病例报告关键信息是缺失的（如针具细节、辨证论治、不良反应）。研究旨在制定首个针刺病例报告报告标准（CARE for Acupuncture），提升报告透明度、完整性和可重复性。

Yuting Duan<sup>1,2</sup>, Zhirui Xu<sup>1,2</sup>, Yongqi Zhang<sup>3</sup>, Shujuan Liu<sup>2</sup>, Juexuan Chen<sup>4</sup>, Yaolong Chen<sup>5</sup>, Nenggui Xu<sup>3</sup>, Chunzhi Tang<sup>3</sup>, Peijing Rong<sup>6</sup>, Liming Lu<sup>3</sup>, Yu Wang<sup>7</sup>, Ye-Seul Lee<sup>8</sup>, Tae-Hun Kim<sup>9</sup>, David S Riley<sup>10</sup>, Lin Shi<sup>1,2</sup>, Myeong Soo Lee<sup>11</sup>, Lin Yu<sup>1,2</sup>

Correspondence to Dr Yuting Duan; duanyt@gzhmu.edu.cn; Dr Lin Yu; yul@gzhmu.edu.cn; Professor Myeong Soo Lee; drmslee@gmail.com

### Abstract

Existing reporting checklists lack the specificity and comprehensiveness required to effectively guide the documentation of acupuncture case reports. Therefore, we developed a reporting guideline tailored specifically for acupuncture case reports, building upon the CAsE REport (CARE) statement. A multidisciplinary group of international experts including clinicians, researchers and methodologists was convened to draft the initial checklist in accordance with the methodology recommended by the Enhancing the QUALity and Transparency Of health Research (EQUATOR) network. Through an extensive literature review and a series of expert interviews, the final CARE for acupuncture checklist comprised of 30 items. 38 experts from diverse disciplines participated in three rounds of modified Delphi surveys to refine and clarify these items. CARE for acupuncture is a comprehensive reporting guideline focused on acupuncture case reports developed with rigorous methodology. We hope that CARE for acupuncture will further guide authors, editors, peer reviewers and readers to enhance the transparency, completeness and accuracy of reporting of case reports in acupuncture.

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**DOI:** <https://doi.org/10.1136/bmjebm-2025-113641>

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Research group from the College of Traditional Chinese Medicine, Jinan University, Guangzhou, China have recently published “A hierarchically assembled oral formulation with drug-convertible carriers for targeted ulcerative colitis therapy through a three-pronged strategy”

## 【机制研究】IF 21.8 陈孝银、邓力、张奕团队：基于中医“君 - 臣 - 佐 - 使”理论提出结肠炎治疗新思路

Frontiers-CMCR 中医药研究前沿 2025年08月15日 11:39 美国

暨南大学中医学院陈孝银/邓力、  
暨南大学生物医学工程研究所张奕团队  
于2025年6月19日

在 Advanced Composites and Hybrid Materials (IF=21.8)

发表了一篇名为

《A hierarchically assembled oral formulation with drug-convertible carriers for targeted ulcerative colitis therapy through a three-pronged strategy》

一种分层组装的口服制剂，采用可转化药物载体，通过三管齐下的策略实现溃疡性结肠炎的靶向治疗

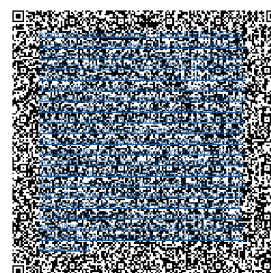
Home > Advanced Composites and Hybrid Materials > Article

### A hierarchically assembled oral formulation with drug-convertible carriers for targeted ulcerative colitis therapy through a three-pronged strategy

Research | Open access | Published: 19 June 2025

Volume 8, article number 280, (2025) Cite this article

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#### 研究亮点

研究从传统中医“君 - 臣 - 佐 - 使”用药理论的出发，创新性地将该药物配伍原则与现代药物递送系统技术相结合，提出一种分级组装的口服递送制剂（BD/PA@SA）用于UC的多靶点治疗，同时干预UC的三大病理机制（炎症、粘膜损伤和肠道微生物群紊乱），最大限度地提高治疗效果。

#### 研究背景

溃疡性结肠炎（UC）是一种炎症性肠病，其特征是结肠反复炎症发作、上皮屏障缺陷和菌群失调。目前用于治疗UC的药物包括5-ASA、皮质类固醇等。然而，这些治疗对UC的缓解率低。此外，由于它们的药物机制侧重于抗炎作用，其靶点有限。菌群失调与UC的发生或进展密切相关，并可进一步导致肠道粘膜损伤。

目前，没有批准的药物可以通过微生物群调节、屏障修复和抗炎作用同时治疗UC。因此，开发新型口服给药系统以实现UC治疗的多靶点治疗仍然至关重要。

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#### RESEARCH

#### A hierarchically assembled oral formulation with drug-convertible carriers for targeted ulcerative colitis therapy through a three-pronged strategy

Yawen Jiang<sup>1</sup> · Huachong Xu<sup>1</sup> · Jialin Wu<sup>1</sup> · Tao Sun<sup>2</sup> · Hongli Lu<sup>1</sup> · Shiqi Wang<sup>1</sup> · Guosen Ou<sup>1</sup> · Shulei Wei<sup>1</sup> · Yihwen Lv<sup>1</sup> · Tangjuan Liu<sup>1</sup> · Yaokang Chen<sup>1</sup> · Baoyi Feng<sup>2</sup> · Wujing Zhang<sup>1</sup> · Zexuan Guo<sup>1</sup> · Lu Xu<sup>1</sup> · Yi Zhang<sup>2,3</sup> · Li Deng<sup>1\*</sup> · Xiaoyin Chen<sup>1</sup>

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#### Abstract

Ulcerative colitis (UC) is a serious global disease whose incidence has been increasing. Currently, its clinical therapies are mainly anti-inflammatory agents and still result in a remission rate of less than 60%. Therefore, developing novel oral delivery systems to achieve multitarget therapy for UC treatment remains crucial. This study develops a hierarchically assembled oral delivery formulation for targeted UC therapy through a three-pronged strategy, including anti-inflammatory effects, barrier restoration, and microbiota modulation. Specifically, berberine and dehydrocholic acid (BD), which are compatible bioactive molecules derived from herbs, are embedded into nano/microscale protein aggregates (PA) for prolonged retention and sustained drug release. Subsequently, BD-embedded PA (BD/PA) is encapsulated by sodium alginate microspheres (SA) to yield BD/PA@SA for colon-targeted delivery. The coordination of components in BD/PA@SA considerably extends the drugs' bioavailability up to 1 week at approximately 1/20 original dosage and targets the three most important pathological features (inflammation, mucosal barrier damage, and gut microbiota disorders) of UC to achieve excellent three-pronged efficacy. Importantly, the delivery carriers (PA and @SA) can be converted into short-chain fatty acids through microbial metabolism to treat UC, as confirmed by the microbiome, metabolomics, and transcriptomics analyses. This work presents a hierarchically assembled oral formulation effective against UC, utilizing carriers that can achieve 1-week retention and sustained drug release, along with the drug-convertible capacity to maximize therapeutic efficacy.

**Keywords** Oral delivery system · Convertible carrier · Herbal combination · Ulcerative colitis · Three-pronged · Protein aggregate

Yawen Jiang, Huachong Xu, Jialin Wu, and Tao Sun contributed equally to this work.

\* Yi Zhang  
zhangyi1024@163.com

Li Deng  
dengli@jnu.edu.cn

Xiaoyin Chen  
chenxiaoyin@jnu.edu.cn

<sup>1</sup> College of Traditional Chinese Medicine, Jinan University, Guangzhou 510632, China

<sup>2</sup> Key Laboratory of Biomaterials of Guangdong Higher Education Institutes, Engineering Technology Research

Center of Drug Carrier of Guangdong, Department of Biomedical Engineering, Jinan University, Guangzhou 510632, China

<sup>3</sup> Guangdong Provincial Key Laboratory of Spine and Spinal Cord Reconstruction, The Fifth Affiliated Hospital (Heyan Shenzhen People's Hospital), Jinan University, Heyan 517000, China

<sup>4</sup> Guangdong Provincial Key Laboratory of Traditional Chinese Medicine Information, Jinan University, Guangzhou 510632, China

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## FDA and EMA Approval: HKU Medical School Develops Oral Arsenic-Based Leukemia Drug with 97% Cure Rate

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NEWS &gt; Hong Kong &gt; Content

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### HKU develops blood cancer treatment with 97% cure rate

By Fang Xue in Hong Kong



Harry Gill (right), clinical associate professor from the University of Hong Kong's Department of Medicine, and his colleagues present samples of a drug for acute promyelocytic leukemia that has a 97-percent cure rate on Feb 10, 2025. (FANG XUE / CHINA DAILY)

### 科研成果 | 获 FDA 和 EMA 认证：港大医学院研发口服砷霜白血病药物 97% 治愈率，首款全球化香港处方药物，开创癌症治疗新篇章

香港大学李嘉诚医学院（港大医学院）研究团队成功研发的三氧化二砷（俗称砷霜）口服药剂（药用口服砷霜或 ARSENOLO<sup>®</sup>），可用于治疗一种死亡率高的血癌——急性早幼粒细胞白血病（acute promyelocytic leukaemia, APL）。药用口服砷霜的发明和应用是香港医学史上的重要里程碑，意义深远。这不仅是香港首款自主发明和制造的处方药，也是首个获得美国、欧洲和日本专利的药物。经过二十年的不懈努力，港大医学院研究团队成功转化香港研发成果为临床应用，将药用口服砷霜纳入 APL 患者的治疗方案。过往广泛的临床研究结果显示，药用口服砷霜具有高效性和安全性，APL 患者的整体存活率超过 97%，能显著减轻副作用和治疗负担。

#### 01. 具历史意义的香港发明：药用口服砷霜治 apl 成效显著

港大医学院的研究团队在药用口服砷霜治疗 APL 已进行超过 20 年的广泛研究。在一项为期 15 年的前瞻性随访研究中，超过 400 名复发性 APL 患者接受以药用口服砷霜为基础的治疗方案后，其分子生物学缓解率（molecular remission rate）和五年整体存活率分别高达 100% 和 80%。这些成果是在未进行骨髓移植的情况下实现的；骨髓移植是一种高度有毒的治疗方法，但全球多个没有药用口服砷霜药剂的地区仍采用此方法。

随后，研究团队将药用口服砷霜作为首次缓解后的维持治疗，喜证五年无白血病存活率和整体存活率分别达至 90% 和 97%。下一步是将药用口服砷霜纳入新确诊 APL 患者的第一线诱导治疗，并达至五年内 100% 无白血病的存活率和整体存活率。综合目前的研究结果，港大医学院的研究人员已制定一套治疗计划，重点包括及早开始治疗、提供必要的支援性护理，以及在第一线诱导治疗中使用药用口服砷霜。这套治疗计划能有效减低 APL 并发症所导致的早期死亡率，过去这一比例可高达 20% 至 30%。

研究团队目前正在香港测试一种全口服治疗方案（简称 AAA），由药用口服砷霜（Oral-ATO）、全反式维甲酸（all-trans retinoic acid, ATRA）及抗坏血酸（ascorbic acid）组成，并根据不同 APL 患者的风险进行调整。

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<https://www.herbalgram.org/resources/herbalgram/issues/142/table-of-contents/hg142-feat-nomenclature/>  
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DOI: 10.1002/ptr.8286**REVIEW****WILEY****Topical and transdermal botanical formulations of the Chinese pharmacopoeia—A review****Jingyi Gu<sup>1</sup>** | **Majella E. Lane<sup>1</sup>** | **Bruno Da Silva Sil Dos Santos<sup>2</sup>** | **Michael Heinrich<sup>3,4</sup>**<sup>1</sup>Department of Pharmaceutics, UCL School of Pharmacy, University of London, London, UK<sup>2</sup>School of Human Sciences, London Metropolitan University, London, UK<sup>3</sup>Department of Chinese Pharmaceutical Sciences and Chinese Medicine Resources, College of Chinese Medicine, China Medical University, Taichung, Taiwan, China<sup>4</sup>Pharmacognosy and Phytotherapy, UCL School of Pharmacy, University of London, London, UK**Correspondence**Jingyi Gu, Department of Pharmaceutics, UCL School of Pharmacy, University of London, 29-39 Brunswick Square, London WC1N 1AX, UK.  
Email: [ucbtjgu@ucl.ac.uk](mailto:ucbtjgu@ucl.ac.uk)**Abstract**

In pharmaceuticals, ingredients are classified as active ingredients and excipients. In topical/transdermal phytomedicines, an ingredient may serve both functions. Published information on these dual-purpose ingredients and their pharmacological relevance is limited. An intriguing scenario arises in traditional Chinese medicine (TCM) formulations, where active ingredients and excipients are undifferentiated. This study analyzes ingredients in TCM topical/transdermal formulations, aiming at harmonization of understanding of TCMs. The most commonly recorded ingredients from such formulations in the Chinese pharmacopoeia 2020 (ChP 2020) are reviewed, aiming at developing innovative topical/transdermal phytomedicines. Current editions of Chinese historical documents were reviewed to explore the principles underlying the use of these ingredients. TCM formulations containing botanical drugs for topical/transdermal application were selected from the ChP 2020. The use of botanical materials in TCM formulations is guided by the “Jun-Chen-Zuo-Shi” principle rooted in Yin-Yang and the five elements’ theories. In the ChP 2020, 155 botanical drugs, along with 40 excipients (from the “procedure” section, focusing on processing and technical parameters), were identified from 34 botanical formulations intended for topical/transdermal application. Pungent and aromatic botanical materials were the most frequently recorded. Adhesive plasters were the most commonly recorded TCM dosage form, employing specific matrix blends. This new perspective of study reveals the prevalence of pungent and aromatic botanical materials, the common use of adhesive plasters, multifunctional properties of botanical oils, and formulation adaptability in TCM topical/transdermal products. These insights should inform novel formulation designs for both pharmaceutical and phytopharmacological research.

**KEYWORDS**

botanical formulation, Chinese pharmacopoeia, ingredient, topical, transdermal

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**EDITED BY**  
John Thor Atkinson,  
University of Ottawa, Canada

**REVIEWED BY**  
Michael Suppli,  
UMI 206 Eco-Anthropologie et Ethnobiologie  
FRAC, France  
José A. Guerrero-Ariza,  
Instituto de Ecología (INECOL), Mexico

**\*CORRESPONDENCE**  
Olha Mykhailenko,  
olmykhailenko@post.ac.uk  
Michael Heinrich,  
mheinh@post.ac.uk

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## Climate change and the sustainable use of medicinal plants: a call for “new” research strategies

Olha Mykhailenko<sup>1,2\*</sup>, Banaz Jalil<sup>3</sup>, Lyndy J. McGaw<sup>2</sup>,  
Javier Echeverría<sup>4</sup>, Marce Takubessy<sup>5,6</sup> and Michael Heinrich<sup>1,4\*</sup>

<sup>1</sup>Pharmacognosy and Phytotherapy, UCL School of Pharmacy, London, United Kingdom,  
<sup>2</sup>Pharmaceutical Chemistry Department, National University of Pharmacy, Heraklio, Greece,  
<sup>3</sup>Phytomedicine Programme, Department of Traditional Sciences, Faculty of Veterinary Science,  
University of Pretoria, Pretoria, Gauteng, South Africa, <sup>4</sup>Departamento de Ciencias del Ambiente,  
Facultad de Química y Biología, Universidad de Santiago de Chile, Santiago, Chile, <sup>5</sup>Pharmacy  
Department, Health Polytechnic of the Ministry of Health, Kupang, Indonesia, <sup>6</sup>Department of  
Pharmaceutical Sciences and Chinese Medicine Research, Chinese Medicine Research Centre, College  
of Chinese Medicine, China Medical University, Taichung, Taiwan

Climate change and human activities severely impact the stability of plants and ecosystems, threatening the environment, biodiversity, and the sustainable development of plant-based products. Biotic and abiotic (ecosystem) determinants affect species distribution and long-term survival, which in turn influence the quality of plants used as herbal medicines and other high-value products. In recent decades, diverse anthropogenic impacts have significantly affected these quality aspects. Climate change, excessive plant exploitation, habitat loss, species vulnerability, and other factors have adversely affected the growth, reproduction, and adaptation of species populations, as well as the quality and volume of primary plant materials supplied to pharmaceutical markets. Despite these growing challenges, there is limited knowledge of potential strategies to prevent or mitigate these impacts, particularly for vulnerable species collected from the wild or harvested from traditional production systems. Hence, effective strategies for preserving and increasing plant populations are urgently needed. In this study, we propose a new framework including the main sustainability factors to better understand and address the vulnerability of a species, hence mitigate the impact of climate change. We assess the applicability of our proposed framework via seven case studies of vulnerable species (i.e., *Aquilaria malaccensis* Lam., *Boswellia sacra* Flück., *Crocus sativus* L., *Panax quinquefolius* L., *Pilocarpus microphyllus* Stapf ex Wardlew., *Rhodiola rosea* L., and *Warburgia salutaris* (G.Bertol.) Chiov.) from main biogeographic realms, all widely used as medicinal plants. These species present various challenges related to the sustainability of their use, impacting their current and future status locally and globally. Their economic importance, combined with rising demands and specific risks of overexploitation, are also key factors considered here. The suggested framework for the sustainability of medicinal and

**ABBREVIATIONS** CITES, Convention on International Trade in Endangered Species; IUCN, International Union for Conservation of Nature (2019); Medicine and Health Food Plants (MHPF), non-toxic food products; SDGs, Sustainable Development Goals; TCM, Traditional Chinese medicine.

## Abstract

Climate change and human activities severely impact the viability of plants and ecosystems, threatening the environment, biodiversity, and the sustainable development of plant-based products. Biotic and abiotic (ecosystem) determinants affect species distribution and long-term survival, which in turn influence the quality of plants used as herbal medicines and other high-value products. In recent decades, diverse anthropogenic impacts have significantly affected these quality aspects. Climate change, excessive plant exploitation, habitat loss, species vulnerability, and other factors have adversely affected the growth, reproduction, and adaptation of species populations, as well as the quality and volume of primary plant materials supplied to pharmaceutical markets. Despite these growing challenges, there is limited knowledge of potential strategies to prevent or mitigate these impacts, particularly for vulnerable species collected from the wild or harvested from traditional production systems. Hence, effective strategies for preserving and increasing plant populations are urgently needed. In this study, we propose a new framework including the main sustainability factors to better understand and address the vulnerability of a species, hence mitigate the impact of climate change. We assess the applicability of our proposed framework via seven case studies of vulnerable species (i.e., *Aquilaria malaccensis* Lam., *Boswellia sacra* Flück., *Crocus sativus* L., *Panax quinquefolius* L., *Pilocarpus microphyllus* Stapf ex Wardlew., *Rhodiola rosea* L., and *Warburgia salutaris* (G.Bertol.) Chiov.) from main biogeographic realms, all widely used as medicinal plants. These species present various challenges related to the sustainability of their use, impacting their current and future status locally and globally. Their economic importance, combined with rising demands and specific risks of overexploitation, are also key factors considered here. The suggested framework for the sustainability of medicinal and other high-value plant-based products in the phytopharmaceutical industry emphasises strategies that promote conservation and sustainable resource use. It can also be adapted for other vulnerable species requiring urgent attention.



## Understanding the research landscape of over-the-counter herbal products, dietary supplements, and medications evaluated for depressive symptoms in adults: a scoping review

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Andrea Orellana-Manzano,  
Facultad de Ciencias de la Vida (FCV), Ecuador

REVIEWED BY  
Xiaoyu Dong,  
Shengjing Hospital of China Medical University,  
China  
Mudassir Alam,  
Aligarh Muslim University, India  
Xuanpeng Wang,  
Dalian Polytechnic University, China

\*CORRESPONDENCE  
Rachael Frost,  
✉ r.h.frost@ljmu.ac.uk

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## Understanding the research landscape of over-the-counter herbal products, dietary supplements, and medications evaluated for depressive symptoms in adults: a scoping review

Rachael Frost<sup>1,2\*</sup>, Aiman Zamri<sup>2</sup>, Silvy Mathew<sup>2</sup>, Adriana Salame<sup>3</sup>,  
Cini Bhanu<sup>2</sup>, Sukvinder K. Bhamra<sup>4</sup>, Juan Carlos Bazo-Alvarez<sup>2,5</sup>,  
Michael Heinrich<sup>6,7</sup> and Kate Walters<sup>2</sup>

<sup>1</sup>School of Public and Allied Health, Liverpool John Moores University, Liverpool, United Kingdom,  
<sup>2</sup>Department of Primary Care and Population Health, University College London, London,  
United Kingdom, <sup>3</sup>Division of Medicine, University College London, London, United Kingdom, <sup>4</sup>Medway  
School of Pharmacy, University of Kent, Kent, United Kingdom, <sup>5</sup>Escuela de Medicina, Universidad Cesar  
Vallejo, Trujillo, Peru, <sup>6</sup>UCL School of Pharmacy, University College London, London, United Kingdom,  
<sup>7</sup>China Medical University, Taichung, Taiwan

**Background:** Over-the-counter (OTC) products such as herbal medical products (HMPs) or dietary supplements are a valued part of preventative and supportive self-care for depressive symptoms, but there is a wide array of products available, with differing levels of clinical evidence. It is unclear what the optimal directions for future research in this field are.

**Aim:** We aimed to explore the size and nature of the evidence base available for OTC products for depression in adults aged 18–60.

**Methods:** We carried out a scoping review following Joanna Briggs Institute guidance. We searched MEDLINE, Embase, PsycINFO, AMED, and CENTRAL from inception to December 2022, and 10% of the results were screened by two authors and the remainder by one author. We included randomised controlled trials of products commonly available OTC in multiple countries in participants with symptoms or a diagnosis of depression. Results were narratively summarised by the product and volume of evidence available.

**Results:** Out of 23,933 records found, we screened 1,367 full texts and included 209 trials. The largest volume of evidence was for omega-3s, St John's Wort, saffron, probiotics, and vitamin D. Among a range of herbal medical products with promising evidence, those most commonly used and thus warranting further research were lavender, lemon balm, chamomile, and Echinium. For 41 products, we found only single trials. Few products presented safety issues, whether used alone or adjunctively with antidepressants.

**Conclusion:** Products with limited but promising evidence included folic acid, lavender, zinc, tryptophan, Rhodiola, and lemon balm, and future research should focus on these products. There is a need for further evaluation of herbal medical

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## Clinical Practice Guidelines

**International clinical practice guideline on the use of traditional Chinese medicine for functional dyspepsia (2025)****Sheng-sheng Zhang<sup>a,\*</sup>, Lu-qing Zhao<sup>a</sup>, Xiao-hua Hou<sup>b</sup>, Zhao-xiang Bian<sup>c</sup>, Jian-hua Zheng<sup>d</sup>, Hai-he Tian<sup>e</sup>, Guan-hu Yang<sup>f</sup>, Won-sook Hong<sup>g</sup>, Yu-ying He<sup>h</sup>, Li Liu<sup>i</sup>, Hong Shen<sup>j</sup>, Yan-ping Li<sup>k</sup>, Sheng Xie<sup>l</sup>, Jin Shu<sup>m</sup>, Bin-fang Zeng<sup>n</sup>, Jun-xiang Li<sup>o</sup>, Zhen Liu<sup>p</sup>, Zheng-hua Xiao<sup>q</sup>, Jing-dong Xiao<sup>r</sup>, Pei-yong Zheng<sup>s</sup>, Shao-gang Huang<sup>t</sup>, Sheng-liang Chen<sup>u</sup>, Gui-jun Fei<sup>v</sup>**<sup>a</sup> Digestive Disease Center, Beijing Hospital of Traditional Chinese Medicine, Beijing 100010, China<sup>b</sup> Department of Gastroenterology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430022 Hubei Province, China<sup>c</sup> Chinese Medicine Clinical Study Center, School of Chinese Medicine, Hong Kong Baptist University, Hong Kong 999077, China<sup>d</sup> Chinese Medicine and Acupuncture Society of Australia Ltd, Sydney 2166, Australia<sup>e</sup> American TCM Association (ATCMA), Vienna, VA 22182, USA<sup>f</sup> Department of Specialty Medicine, Ohio University, Athens, OH 45701, USA<sup>g</sup> Shanghai Hechuan-Rhine TCM Hospital, Shanghai 200240, China<sup>h</sup> Yuying TCM Clinic, Paya Lebar Square, S409051, Singapore<sup>i</sup> College of Traditional Chinese Medicine, Shaanxi University of Traditional Chinese Medicine, Xianyang 712046 Shaanxi Province, China<sup>j</sup> Department of Gastroenterology, Jiangsu Provincial Hospital of Chinese Medicine, Affiliated Hospital of Nanjing University of Chinese Medicine, Nanjing 210029 Jiangsu Province, China<sup>k</sup> Department of Gastroenterology, Chongqing Hospital of Traditional Chinese Medicine, Chongqing 400000, China<sup>l</sup> Department of Administration, the First Affiliated Hospital of Guangxi University of Traditional Chinese Medicine, Nanning 530021, Guangxi Zhuang Autonomous Region, China<sup>m</sup> Gansu Provincial Hospital of Traditional Chinese Medicine, Lanzhou 730050 Gansu Province, China<sup>n</sup> College of Traditional Chinese Medicine, Xinjiang Medical University, Urumqi 830011, Xinjiang Uygur Autonomous Region, China<sup>o</sup> Department of Gastroenterology, Dongfang Hospital, Beijing University of Chinese Medicine, Beijing 100078, China<sup>p</sup> Department of Hospital, Guang'anmen Hospital, China Academy of Chinese Medical Sciences, Beijing 100053, China<sup>q</sup> Department of Gastroenterology, the Second Affiliated Hospital of Guizhou University of Traditional Chinese Medicine, Guiyang 550003 Guizhou Province, China<sup>r</sup> Department of Digestive Diseases, Liaoning University of Traditional Chinese Medicine, Shenyang 110032 Liaoning Province, China<sup>s</sup> Institute of Digestive Disease, Longhua Hospital, Shanghai University of Traditional Chinese Medicine, Shanghai 200032, China<sup>t</sup> State Key Laboratory of Dampness Syndrome of Chinese Medicine, the Second Affiliated Hospital of Guangzhou University of Chinese Medicine, Guangzhou 510120 Guangdong Province, China<sup>u</sup> Department of Gastroenterology and Hepatology, Renji Hospital, School of Medicine, Shanghai Jiao Tong University, Shanghai 200127, China<sup>v</sup> Department of Gastroenterology, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100730, China

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## ABSTRACT

Functional dyspepsia (FD), characterized by persistent or recurrent dyspeptic symptoms without identifiable organic, systemic or metabolic causes, is an increasingly recognized global health issue. The objective of this guideline is to equip clinicians and nursing professionals with evidence-based strategies for the management and treatment of adult patients with FD using traditional Chinese medicine (TCM). The Guideline Development Group consulted existing TCM consensus documents on FD and convened a panel of 35 clinicians to generate initial clinical queries. To address these queries, a systematic literature search was conducted across PubMed, EMBASE, the Cochrane Library, China National Knowledge Infrastructure (CNKI), VIP Database, China Biology Medicine (SinoMed) Database, Wanfang Database, Traditional Medicine Research Data Expanded (TMRDE), and the Traditional Chinese Medical Literature Analysis and Retrieval System (TCMLARS). The evidence from the literature was critically appraised using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach. The strength of the recommendations was ascertained through a consensus-building process involving TCM and allopathic medicine experts, methodologists, pharmacologists, nursing specialists, and health economists, leveraging their collective expertise and empirical knowledge. The guideline comprises a

\* Corresponding author.

E-mail address: [zhangshengsheng@bjzhongyi.com](mailto:zhangshengsheng@bjzhongyi.com) (S.S. Zhang).<https://doi.org/10.1016/j.joim.2025.05.002>

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# Evaluating the role of large language models in traditional Chinese medicine diagnosis and treatment recommendations

Yu Liu<sup>1</sup>, Yishan Yuan<sup>2</sup>, Keming Yan<sup>1</sup>, Yuanyuan Li<sup>1</sup>, Valeria Sacca<sup>1</sup>, Sierra Hodges<sup>1</sup>, Mattia Cannistra<sup>1</sup>, Pauline Jeong<sup>1</sup>, Jiani Wu<sup>1</sup> & Jian Kong<sup>1</sup> ✉

Digital health technologies hold significant potential for reducing global healthcare disparities. Large language models (LLMs) offer new opportunities to enhance access to culturally specific healthcare, including traditional Chinese medicine (TCM). This study evaluated the diagnostic and treatment performance of seven publicly available LLMs using a real-world acupuncture case, comparing their outputs with three professional acupuncturists across five domains: Western diagnosis, TCM diagnosis, acupoint selection, needling technique, and herbal medicine. Twenty-eight expert evaluators from China, South Korea, and the United States assessed the responses using a multilingual survey. LLMs performed comparably to acupuncturists in Western diagnosis and showed variable performance in TCM-specific tasks. GPT-4o, Qwen 2.5 Max, and Doubao 1.5 Pro demonstrated the highest alignment with expert evaluations, particularly in TCM diagnosis and acupoint selection. These findings highlight the potential of general-purpose LLMs to support culturally grounded medical decision-making and reduce access barriers in TCM care systems.

Traditional Chinese Medicine (TCM) offers therapeutic approaches through herbal medicine, acupuncture, and Qigong to support neurological disorders<sup>1,2</sup>, mental health<sup>3,4</sup>, pain relief<sup>5,6</sup>, women's health and fertility<sup>7,8</sup>, cancer care<sup>9,10</sup>, chronic conditions<sup>11,12</sup>, disease prevention<sup>13,14</sup>, and overall wellness<sup>15,16</sup>. These approaches emphasize personalized treatment based on individual patient assessment, syndrome differentiation<sup>17</sup>, and many other disorders/conditions. However, global adoption of TCM faces significant barriers. Its philosophical foundations, such as Yin-Yang balance<sup>18</sup>, five elements, and Qi flow<sup>19</sup>, are deeply rooted in Chinese philosophy, making them difficult to translate into global and modern scientific biomedical models<sup>20</sup>. Additionally, the diagnostic approach in TCM also differs significantly from modern Western medicine; while Western protocols typically follow standardized pathways, TCM adopts a more personalized and nonlinear diagnosis approach<sup>21</sup>. These philosophical and methodological differences create substantial and fundamental cultural and systemic barriers to global reach and adoption of TCM, affecting broader health equity. Populations unfamiliar with the cultural context of TCM struggle to fully understand and trust its practices, limiting their access to its potential benefits. Addressing these cultural disparities is essential for transforming TCM into a globally inclusive healthcare option.

Recent advances in digital health technologies, particularly large language models (LLMs), present an innovative opportunity for making TCM more globally accessible<sup>22–25</sup>. LLMs have proven valuable in clinical decision support, diagnostics, and medical documentation<sup>26–29</sup>, while also playing an expanding role in medical education<sup>30–32</sup>. Furthermore, their multilingual capabilities and adaptability enable more inclusive digital health solutions, ensuring accessibility for diverse populations through culturally and linguistically tailored applications<sup>33,34</sup>. However, the use of LLMs for TCM presents unique challenges due to its complex philosophical and linguistic nuances. For example, adapting LLMs to TCM-specific tasks such as syndrome differentiation, acupuncture point selection, and herbal medicine recommendations, require LLMs to bridge significant cultural and theoretical gaps<sup>35</sup>. Thus, successfully integrating LLMs into TCM practice demands not only technological advancements but also a deeper understanding of cross-cultural medical translation capabilities.

This study aims to evaluate the performance of LLMs in diagnosing and recommending treatments for a complex real-world acupuncture case study by comparing the performance of seven general-purpose LLMs with professional acupuncturists. Specifically, we test three hypotheses: (1) can

<sup>1</sup>Department of Psychiatry, Massachusetts General Hospital and Harvard Medical School, Charlestown, MA, USA. <sup>2</sup>Beijing University of Chinese Medicine, Beijing, China. ✉e-mail: [jkong2@mgh.harvard.edu](mailto:jkong2@mgh.harvard.edu)

## The Lancet One Health Commission: harnessing our interconnectedness for equitable, sustainable, and healthy socioecological systems

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### The Lancet Commissions

## The Lancet One Health Commission: harnessing our interconnectedness for equitable, sustainable, and healthy socioecological systems



Andrea S Winkler\*, Christina Marie Brux\*, Hélène Carabin†, Carlos G das Neves‡, Barbara Häslert, Jakob Zinsstag†, Eric Maurice Fèvre†, Anna Okello‡, Gabrielle Laing‡, Wendy Elizabeth Harrison‡, Anna K Pöntinen, Annalena Huber, Arne Ruckert, Barbara Natterson-Horowitz, Bernadette Abela, Cécile Aenishaenslin, David L Heymann, Ernst Kristian Røedland, Franck C J Berthe, Ilaria Capua, James Sejvar, Juan Lubroth, Jukka Corander, Jürgen May, Laura Franziska Roth, Lian Francesca Thomas, Lucille Blumberg, Maria Knight Lapinski, Matthew Stone, Melvin Katey Agbogbete, Ning Xiao, Osama Ahmed Hassan, Osman Dar, Peter Daszak, Renzo R Guinto, Sera Senturk, Sundeeep Sahay, Thelma Alafia Samuels, Yngvild Wasteson, John H Amuasi§

### Executive summary

Industrialisation, urbanisation, and globalisation have substantially improved human life expectancy over the past century. In tandem, an expanding array of interlinked threats to humans, other animals, plants, and a myriad of other biotic and abiotic elements in our shared ecosystems has been generated. These threats include emerging and re-emerging infectious diseases, antimicrobial resistance (AMR), non-communicable diseases (NCDs), jeopardised food safety and security, freshwater scarcity, climate change, pollution, and biodiversity loss. These pressing health and sustainability challenges exceed the scope of any single discipline, government ministry, or societal sector, underscoring the need for interdisciplinary, transdisciplinary, and multisectoral collaboration, as well as for a socioecologically oriented systems perspective that appreciates the fundamental interconnections between humans, other animals, and the wider ecosystem.

When this Commission first convened in 2019, One Health was a highly visible, but also greatly evolving, concept and approach. Predominantly driven by the veterinary sector, the primary focus of One Health in early years had been on zoonotic diseases, but more recent years have seen an increasingly interdisciplinary and transdisciplinary expansion and diversification of the concept, a proliferation of initiatives, and growing concerns about fragmentation and insufficient conceptual clarity. There was a need to advance not only conceptual expansion, but also consensus, as well as aligned, interdisciplinary, transdisciplinary, and multisectoral efforts towards One Health operationalisation, implementation, and institutionalisation. We set out to address these needs and leverage One Health as a crucial and viable approach to achieving equitable, sustainable, and healthy socioecological systems—the vision of the *Lancet* One Health Commission. The zoonotic underpinnings of the COVID-19 pandemic and its wide-ranging effects across sectors necessitated a radical rethink of the role of One Health in pursuing sustainable development and substantially shaped the importance and trajectories of the Commission's work.

The Commission's methodology entailed convening a diverse, transnational, and interdisciplinary group of

experts, who conducted an informed synthesis and appraisal of the current state of knowledge and evidence regarding the need for and value of One Health, which resulted in the proposal of key avenues for One Health operationalisation, implementation, and institutionalisation. We build on new and evolving One Health advances, including the One Health Joint Plan of Action, launched by the One Health Quadripartite, and the definition of One Health, One Health principles, and theory of change put forth by the One Health High-Level Expert Panel (OHHLEP).

This Commission is guided by a One Health ethos comprising principles of holism and systems thinking, epistemological pluralism, equity and egalitarianism, and stewardship and sustainability. The Commission also engages a socioecological systems perspective that sheds light on the crucial importance of the environment, including plants, soil, water, air, wildlife, biodiversity, and climate. In our approach, we have deliberately avoided boundaries between humans, other animals, and the environment. As reflected in the key messages, the evidence synthesis and appraisal was structured via sections dedicated to surveillance, infectious diseases, AMR, NCDs, health systems, and food systems.

The *Lancet* One Health Commission provides a cutting-edge appraisal of where One Health has come from, where it is now, and what a viable future should be. One Health was not mentioned in the 2030 Sustainable Development Agenda; however, the impact of the COVID-19 pandemic brought into acute focus the fundamental interconnections between humans, other animals, plants, and a myriad of other biotic and abiotic elements in the ecosystem, and, consequently, how healthy sustainable socioecological systems could be achieved via a One Health approach. The consensus around One Health that has been built by the One Health Quadripartite and OHHLEP, which has been reinforced by this Commission, is essential for addressing the threats to health posed by infectious diseases, AMR, NCDs, and planetary crises; harnessing data and artificial intelligence for disease surveillance and health-care delivery; forging equitable partnerships and inclusive collaborations; and generating necessary insight into socioecological interconnection. As such, One Health is a crucial catalyst in the pursuit of an equitable, sustainable,

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\*First authors

†Second authors and core writing team

‡Third authors and working group leads

§Senior author

Department of Neurology, Technical University of Munich University Hospital, and Center for Global Health, School of Medicine and Health, Technical University of Munich, Munich, Germany

(Prof A S Winkler MD PhD,

A Huber MSc, L F Roth MSc,

S Senturk MBChB MSc);

Department of Community

Medicine and Global Health,

Institute of Health and Society,

Faculty of Medicine, University

of Oslo, Oslo, Norway

(Prof A S Winkler); Department

of Global Health and Social

Medicine, Harvard Medical

School, Boston, MA, USA

(Prof A S Winkler); Sustainable

Health Unit, Faculty of

Medicine, University of Oslo,

Oslo, Norway (C M Brux MPhil);

Faculty of Veterinary Medicine

and School of Public Health,

University of Montreal,

Montreal, QC, Canada

(Prof H Carabin DVM PhD);

European Food Safety

Authority, Parma, Italy

(Prof C G das Neves DVM PhD);

Norwegian Veterinary

Institute, Oslo, Norway

(Prof C G das Neves);

Department of Pathobiology

and Population Sciences,

Veterinary Epidemiology,

Economics and Public Health

Group, The Royal Veterinary

College, Hatfield, UK

## vii The entities enabling scientific fraud at scale are large, resilient, and growing rapidly

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## The entities enabling scientific fraud at scale are large, resilient, and growing rapidly

Reese A. K. Richardson<sup>a,b</sup>, Spencer S. Hong<sup>c</sup>, Jennifer A. Byrne<sup>d,e,1</sup>, Thomas Stoeger<sup>f,g,h,1</sup>, and Luís A. Nunes Amaral<sup>a,b,i,j,k,1</sup>

Affiliations are included on p. 10.

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Science is characterized by collaboration and cooperation, but also by uncertainty, competition, and inequality. While there has always been some concern that these pressures may compel some to defect from the scientific research ethos—i.e., fail to make genuine contributions to the production of knowledge or to the training of an expert workforce—the focus has largely been on the actions of lone individuals. Recently, however, reports of coordinated scientific fraud activities have increased. Some suggest that the ease of communication provided by the internet and open-access publishing have created the conditions for the emergence of entities—paper mills (i.e., sellers of mass-produced low quality and fabricated research), brokers (i.e., conduits between producers and publishers of fraudulent research), predatory journals, who do not conduct any quality controls on submissions—that facilitate systematic scientific fraud. Here, we demonstrate through case studies that i) individuals have cooperated to publish papers that were eventually retracted in a number of journals, ii) brokers have enabled publication in targeted journals at scale, and iii), within a field of science, not all subfields are equally targeted for scientific fraud. Our results reveal some of the strategies that enable the entities promoting scientific fraud to evade interventions. Our final analysis suggests that this ability to evade interventions is enabling the number of fraudulent publications to grow at a rate far outpacing that of legitimate science.

fraud | metascience | organizations

Over the last four centuries, the production of scientific knowledge has increasingly become a matter of state and societal importance. The “contract” between scientists and states can be summarized thusly: In exchange for creating new knowledge that is useful to the state and training a workforce able to use that knowledge, society supports scientists with rewarding careers, good salaries, and public recognition. The success of this contract has led to an extraordinary growth in the scale and scope of the scientific enterprise (1) and to its adoption across the world (2). Indeed, some studies suggest that the wealth of a nation is closely aligned with the amount (3, 4) and quality (5) of the research it produces.

The state-supported scientific enterprise can be idealized as a public goods game (6) with numerous and diverse stakeholders. Because of the increasing complexity of the knowledge being created and increased specialization, the system relies on the good-faith assumption of genuine contributions by all participants (7–10). Scientists rely on other scientists to disclose knowledge that can be built upon, on other scientists and on publishers for the screening of scientific studies, on publishers for the dissemination of their work and on funding agencies and universities for support. Universities and funding agencies rely on scientists for evaluating the work of their peers and on the state and society for their funding. Private-sector firms rely on universities to educate a knowledgeable workforce. The state and society rely on scientists to produce knowledge that will improve well-being and state security. Etzkowitz and Leydesdorff formalized certain aspects of this web of relationships in their ‘triple helix’ model of knowledge-based economic development (11).

The success of this model could be in jeopardy if some stakeholders fail to contribute fairly to the tasks assigned to them. Due to the increasing scale and scope of the scientific enterprise, the degree to which stakeholders contribute to the system is now increasingly evaluated by potentially misleading proxies (12, 13) such as the h-index (14), journal impact factor, university rankings, and scientific prizes. Nonetheless, these proxies have quickly become targets for evaluation of institutional and personal impact, resulting in increasing competition and growing inequality in how resources and rewards are

## Significance

Numerous recent scientific and journalistic investigations demonstrate that systematic scientific fraud is a growing threat to the scientific enterprise. In large measure this has been attributed to organizations known as research paper mills. We uncover footprints of activities connected to scientific fraud that extend beyond the production of fake papers to brokerage roles in a widespread network of editors and authors who cooperate to achieve the publication of scientific papers that escape traditional peer-review standards. Our analysis reveals insights into how such organizations are structured and how they operate.

Author contributions: R.A.K.R., J.A.B., T.S., and L.A.N.A. designed research; R.A.K.R., S.S.H., and L.A.N.A. performed research; R.A.K.R. and L.A.N.A. contributed new reagents/analytic tools; R.A.K.R., S.S.H., and L.A.N.A. analyzed data; and R.A.K.R., S.S.H., J.A.B., T.S., and L.A.N.A. wrote the paper.

The authors declare no competing interest.

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<sup>1</sup>To whom correspondence may be addressed. Email: jennifer.byrne@health.nsw.gov.au, thomas.stoeger@northwestern.edu, or amaral@northwestern.edu.

This article contains supporting information online at <https://www.pnas.org/lookup/suppl/doi:10.1073/pnas.2420092122/-DCSupplemental>.

Published August 4, 2025.



## viii Mapping the application of artificial intelligence in traditional medicine: technical brief

### Overview

Artificial Intelligence (AI) refers to the capability of algorithms integrated into systems and tools to learn from data so that they can perform automated tasks without explicit programming of every step by a human. This technical brief offers insight into the rapidly evolving AI for health landscape and how it might be utilized in Traditional Medicine (TM). Regional and global examples are presented to show how AI is currently being used in TM to support evidence-informed decision-making and policy-making to improve health systems and universal health coverage (UHC). The document was developed by leveraging the findings of a literature review and supplementing this with knowledge and inputs captured during the conceptualization process with experts from the Topic Group on AI and Traditional Medicine (TG-TM) under the ITU-WHO Focus Group on Artificial Intelligence for Health (FG-AI4H).



### WHO TEAM

Digital Health and Innovation (DHI), WHO Global Centre for Traditional Medicine (TMC)

### EDITORS



World Health Organization & International Telecommunication Union.

### REFERENCE NUMBERS

ISBN: 978-92-4-010766-3

## Mapping the application of artificial intelligence in traditional medicine: technical brief

Detail: <https://www.who.int/publications/i/item/9789240107663>

<b>Topic</b>	<b>Leveraging Big Data Analytics for Advancing Precision Medicine in Inflammatory Diseases</b>
<b>Deadline</b>	31 December 2025
<b>Details</b>	<a href="https://link.springer.com/collections/jibhfibgeb">https://link.springer.com/collections/jibhfibgeb</a>
 <b>Editor(s)</b>	<p><b>Hao Chi,</b> Clinical Medical College at Southwest Medical University, Luzhou, China</p> <p><b>Ke Xu,</b> Chongqing University Affiliated People's Hospital</p> <p><b>Guanhu Yang,</b> Beijing University of TCM and Ohio University</p> 



## Postgraduate opportunities in Europe

Europe offers a wealth of postgraduate opportunities, known for their high-quality education, diverse research programs, and numerous funding options. Many European countries provide international students with affordable or even free education, along with a multicultural environment that fosters innovation and collaboration.

### 1. PhD in Plant-Based Alternative Protein Sources at Ulster University, UK

- **Description:** This project focuses on measuring the impact of whole plant-based alternative protein sources on gut health and metabolic function. It involves research on aquatic plants like duckweed as potential sources of alternative proteins.
- **Requirements:** Bachelor's or Master's degree in a relevant field, strong background in plant sciences, nutrition, or related disciplines.
- **Application Deadline:** February 24<sup>th</sup>, 2025.
- **Contact Information:** Apply by February 24<sup>th</sup>, 2025. For more details, visit the Ulster University website @ <https://www.ulster.ac.uk/doctoralcollege/find-a-phd/3b-biomedical-sciences/>



### 2. PhD in Molecular Mechanics of Plant Ion Channels at University of Glasgow, UK

- **Description:** This project aims to understand the molecular mechanics of clustering and gating in plant ion channels, which are crucial for their activity in eukaryotic membranes.
- **Requirements:** Bachelor's or Master's degree in a relevant field, strong background in molecular biology, biochemistry, or related disciplines.
- **Application Deadline:** Open until filled.
- **Contact Information:** Applications are accepted year-round. For more details, visit the University of Glasgow website @ <https://www.gla.ac.uk/postgraduate/research/plantscience/>





## Online tools for finding a PhD program around the world



The following are PhD searching platforms designed to assist prospective PhD students in finding and applying for doctoral programs. These platforms not only list PhD opportunities but also offer valuable tips on the application process, funding options, and life as a PhD student. You can refine your search with filters for country, subject (ex. Herbal medicine, Pharmacology, ...), and institution to find programs that best match your interests. Good luck with your search!

- FindAPhD : <https://www.findaphd.com/>
- PhD Portal : <https://www.phdportal.com/>
- Academic Positions : <https://academicpositions.com/jobs/position/phd>
- ScholarshipDb.net : <https://scholarshipdb.net/>



*Good luck with your search!*

**Networking** is a crucial aspect for researchers. Here are the top networking sites widely used in the scientific community abroad. Enjoy connecting with new people!

- LinkedIn : <https://linkedin.com/>

To make the most of LinkedIn, start by creating an engaging profile that showcases your professional/academic achievements. Regularly update your connections with your latest scientific breakthroughs to keep them informed of your progress. If you don't know where to start, follow these pages that repost PhD and post-doctoral position openings.

- jobRxiv
- Jobs4Biotech : Mainly posts research opportunities in France.

- Research Gate : <https://www.researchgate.net/>
- Academia.edu : <https://www.academia.edu/>
- ORCID : <https://orcid.org/>



# Postgraduate Opportunities

## Opportunities in Europe

Europe offers a wealth of postgraduate opportunities, known for their high-quality education, diverse research programs, and numerous funding options. Many European countries provide international students with affordable or even free education, along with a multicultural environment that fosters innovation and collaboration.

### Belgium

PhD Study in Belgium – A Guide for 2024 | FindAPhD.com is a guide to understand the PhD in Belgium and to find one.

<https://www.findaphd.com/guides/phd-study-in-belgium>

161 PhD jobs in Belgium - Academic Positions is to find PhD opportunities in Belgium.

<https://academicpositions.com/jobs/position/phd/country/belgium>

University of Mons (UMONS) : Select a PhD/Post-Doc topic - Université de Mons (umons.ac.be) is to find a PhD or a Post-Doc in UMONS.

- The ProtMic Research Group is hiring a full-time post-doc in the field of renewable sources of plant biostimulation and the cyanobacteria

<https://web.umons.ac.be/en/recherche/le-doctorat/search-a-thesis-topic/>

### Opportunities at the De Duve Institute :

<https://www.deduveinstitute.be/fr/jobs>

Professor Zhu Jingling's lab which focuses on pioneering advancements in tumor immunotherapy, including novel targets, improved delivery methods, and uncovering resistance mechanisms is looking for

- 1 PhD student and 1 Post-doctoral student in immunity and cancer (4 years)
- 1 Bioinformatician (3 years)
- Professor Tyteca Donatienne's lab which studies how plasma membrane lipid distribution and biophysical properties control cell deformation in physiology and pathology is looking for
- 1 Post-doctoral student in Mechanobiology in Cancer
- Professor Charles De Smet's lab which studies the consequences and causes of genetic alterations in cancer is looking for
- 1 PhD student and 1 Postdoctoral student in Epigenetics and Proteomics.



### France

PhD in France - Subjects (PhD, Master's & Postdoc training) (campusfrance.org) is to find a PhD in France

<https://doctorat.campusfrance.org/en/phd/offers>

### Switzerland

52 Postdoc jobs in Switzerland - Academic Positions

<https://academicpositions.com/jobs/position/post-doc/country/switzerland>



## Freely Accessible Learning Material

### Interesting articles

An Introduction to Statistics: Choosing the Correct Statistical Test (ijccm.org) :

This article provides a comprehensive overview of the myriad factors that influence the choice of a statistical test and identifies several statistical tests that are commonly utilized in practical application.

- <https://www.ijccm.org/doi/pdf/10.5005/jp-journals-10071-23815>

Writing a scientific article: A step-by-step guide for beginners - ScienceDirect:  
A guide for beginner to write a scientific article

- <https://www.sciencedirect.com/science/article/abs/pii/S1878764915001606>

What every new reviewer should know about peer review: workshop hosted by the SAJS

- <https://www.assaf.org.za/wp-content/uploads/2024/09/3-What-every-new-reviewer-should-know-about-peer-review.pdf>

## Freely Accessible Learning Material

### Online learning Platforms

**Functional Metabolomics Lab - YouTube** : YouTube channel that upload summer schools, seminars and workshops on Metabolomics

- <https://www.youtube.com/@functionalmetabolomics/videos>

**(Galaxy Training! (galaxyproject.org))** : A platform designed for on-site education and training in bioinformatics, omics, and other related areas is available.

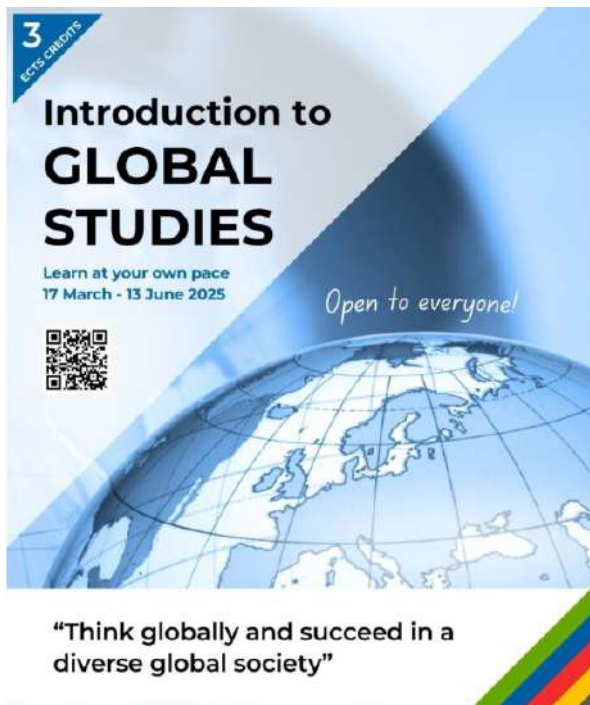
Link to Galaxy ([usegalaxy.eu](https://usegalaxy.eu)) which is a scientific workflow, data integration, and persistence and publishing platform for computational biology. It aims to provide research scientists who do not have programming experience with access to computational biology. The platform offers a multi-omics treatment solution.





# Freely Accessible Learning Material

## Global Studies



**Don't miss out on this opportunity! Massive Open Online Course organized by Eunice (Deadline : June 2025)**

- This free online course covers topics such as economics and business, society, culture, health and engineering, from a globalised point of view. One of the key elements of this MOOC is that it is taught by **18 professors** from 9 universities, from different countries.
- This MOOC is a self-study course, so participants can start it any time from 17 March 2025 until the deadline in June 2025 and follow it at their own pace.

<https://moodle.eunice-university.eu/login/index.php>

## Useful tools/databases for natural products datamining

These tools and databases can help researchers in various aspects of natural products research, including identifying active compounds, predicting activities, and visualizing pathways. Here are some primary use cases for each tool:

### SuperNatural 3.0 ([bioinf-applied.charite.de/supernatural\\_3/index.php](https://bioinf-applied.charite.de/supernatural_3/index.php))

- Predict pharmacological targets of a compound
- Find suppliers of a compound
- Identify the species of origin of a compound
- Predict which compounds will target a metabolic pathway (search by KEGG number)
- Predict the metabolic pathways targeted by a compound
- Predict compounds targeting a specific target (protein or gene), as well as similar compounds
- Predict the taste of compounds (sweet, salty, bitter, etc.)

#### Reference:

Kathleen Gallo, Emanuel Kemmler, Andrean Goede, Finnja Becker, Mathias Dunkel, Robert Preissner, Priyanka Banerjee, SuperNatural 3.0—a database of natural products and natural product-based derivatives, *Nucleic Acids Research*, Volume 51, Issue D1, 6 January 2023, Pages D654–D659

<https://doi.org/10.1093/nar/gkac1008>



# Freely Accessible Learning Material

## Global Studies

### Useful tools/databases for natural products datamining

#### Reactome (<https://reactome.org/>)

- Visualization of metabolic pathways
- Allows identification of active substances acting on a pathology (with metabolic pathway diagram)
- Easy visualization of protein-protein interactions
- For drugs, provides links to "Guide to Pharmacology," which contains precise pharmacology data

#### Reference:

Marija Milacic, Deidre Beavers, Patrick Conley, Chuqiao Gong, Marc Gillespie, Johannes Griss, Robin Haw, Bijay Jassal, Lisa Matthews, Bruce May, Robert Petryszak, Eliot Ragueneau, Karen Rothfels, Cristoffer Sevilla, Veronica Shamovsky, Ralf Stephan, Krishna Tiwari, Thawfeek Varusai, Joel Weiser, Adam Wright, Guanming Wu, Lincoln Stein, Henning Hermjakob, Peter D'Eustachio, The Reactome Pathway Knowledgebase 2024, *Nucleic Acids Research*, Volume 52, Issue D1, 5 January 2024, Pages D672–D678

<https://doi.org/10.1093/nar/gkad1025>

#### NPASS (<http://bidd.group/NPASS>)

- Search by NPC number available
- Identify the species of origin of a compound
- Find known activities of a compound
- Find compounds present in a species
- Find compounds targeting a specific target or a particular organism
- ADME/Tox prediction (via ADMETlab2.0)
- Find compounds with similar structures

#### Reference:

Hui Zhao, Yuan Yang, Shuaiqi Wang, Xue Yang, Kaicheng Zhou, Caili Xu, Xuyao Zhang, Jiajun Fan, Dongyue Hou, Xingxiu Li, Hanbo Lin, Ying Tan, Shanshan Wang, Xin-Yi Chu, Dongzhi Zhuoma, Fengying Zhang, Dianwen Ju, Xian Zeng, Yu Zong Chen, NPASS database update 2023: quantitative natural product activity and species source database for biomedical research, *Nucleic Acids Research*, Volume 51, Issue D1, 6 January 2023, Pages D621–D628,

<https://doi.org/10.1093/nar/gkac1069>



## Apply for a grant in Europe

i

ERC starting grant : is for early-career scientists with 2-7 years of experience after completion of PhD.

More information at



Details: <https://erc.europa.eu/apply-grant/starting-grant>



ii

Marie Skłodowska-Curie Actions : supported by the European Commission, MSCA proposes various fellowships to support research and innovation through the development of human resources.

More information at



Details: <https://marie-sklodowska-curie-actions.ec.europa.eu/>

iii

Euraxess – Belgium : Where you can find different funding opportunities for doctoral, post-doctoral, early career or internship in Belgium.

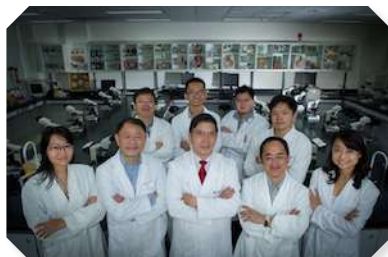
More information at



Details: <https://www.euraxess.be/belgium/jobs-funding>



i



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.html>



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>



澳門大學  
UNIVERSIDADE DE MACAU  
UNIVERSITY OF MACAU



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

iii



Doctor of Philosophy in Biomedical Sciences  
Institute of Chinese Medical Sciences, University of Macau

Details: <https://sklqrcm.um.edu.mo/ycmdbs/>



LKS Faculty of Medicine  
The University of Hong Kong  
香港大學李嘉誠醫學院



iv

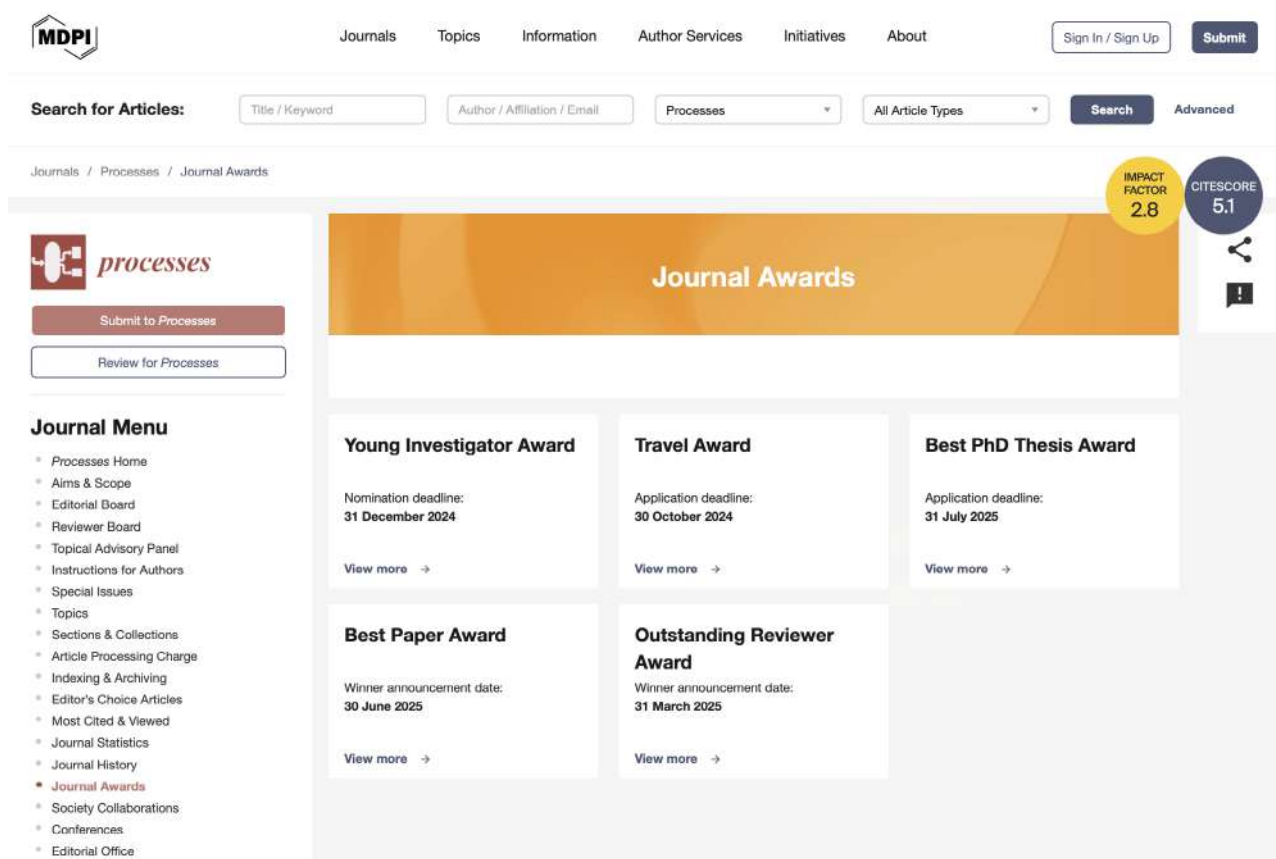


PhD in Chinese Medicine  
School of Chinese Medicine, The University of Hong Kong

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

Journal Award by *Processes*

 More information: <https://www.mdpi.com/journal/processes/awards>



The screenshot displays the MDPI Processes Journal Awards page. At the top, the MDPI logo is on the left, and navigation links for Journals, Topics, Information, Author Services, Initiatives, and About are in the center. On the right, there are links for Sign In / Sign Up and Submit. Below the navigation bar is a search section with fields for Title / Keyword, Author / Affiliation / Email, Processes (a dropdown menu), and All Article Types (a dropdown menu), followed by a Search button and an Advanced link. The breadcrumb trail reads Journals / Processes / Journal Awards. On the left side, there is a sidebar with the Processes logo, a Submit to Processes button, a Review for Processes button, and a Journal Menu. The Journal Menu lists various links: Processes Home, Aims & Scope, Editorial Board, Reviewer Board, Topical Advisory Panel, Instructions for Authors, Special Issues, Topics, Sections & Collections, Article Processing Charge, Indexing & Archiving, Editor's Choice Articles, Most Cited & Viewed, Journal Statistics, Journal History, Journal Awards (highlighted with a red dot), Society Collaborations, Conferences, and Editorial Office. The main content area features a large orange banner with the text 'Journal Awards'. To the right of the banner are two circular badges: 'IMPACT FACTOR 2.8' and 'CITESCORE 5.1'. Below the banner, there are five award cards arranged in a grid. Each card has a title, a deadline or announcement date, and a 'View more' link with a right arrow. The awards are: Young Investigator Award (Nomination deadline: 31 December 2024), Travel Award (Application deadline: 30 October 2024), Best PhD Thesis Award (Application deadline: 31 July 2025), Best Paper Award (Winner announcement date: 30 June 2025), and Outstanding Reviewer Award (Winner announcement date: 31 March 2025).

## Med Plant Hunt with iNaturalist

i



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



Registration form



How to upload

For inquiries about Med Plant Hunt, please send email to

[gptcm\\_medplanthunt@outlook.com](mailto:gptcm_medplanthunt@outlook.com)



## Med Plant Hunt with iNaturalist

i



### 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](mailto:gptcm_medplanthunt@outlook.com) for registration)



Online registration



How to join



Registration form



How to upload



Costus (*Aucklandia lappa*, Asteraceae, 云木香, left) and  
elecampane (*Inula helenium*, Asteraceae, 土木香, right)



Native to Indian Himalayas, *Aucklandia lappa* has been cultivated in China (such as in Yunnan province) since 1920s. Official in current Chinese Pharmacopeia, the dried root is the common Chinese medicinal *muxiang* (*aucklandiae radix*). Pungent, bitter, and warm in properties, *muxiang* promotes the movement of *qi* and alleviates pain. It is indicated for syndromes of spleen and stomach *qi* stagnation with such symptoms as epigastric or abdominal distention and pain, liver and gallbladder *qi* stagnation with such symptoms as hypochondriac or abdominal distention and pain, and jaundice. It is also an important Chinese medicinal for the treatment of tenesmus.

Native to Europe, North America, and China (such as Xinjiang province), *Inula helenium* is extensively cultivated in China (such as in Hebei province). Official in current Chinese Pharmacopeia, the dried root is known as the Chinese medicinal *tumuxiang* (*inulae radix*). In Chinese *materia medica*, functions and indications of *tumuxiang* are believed to be similar to that of *muxiang*. However, as a western herb as well, the underground part of elecampane is stated to have expectorant, antitussive, diaphoretic, and bactericidal properties. It is indicated for bronchial catarrh, cough associated with pulmonary tuberculosis, and dry irritating cough in children.

Attention should be paid to the scientific names of *muxiang*. *Aucklandia lappa* is treated as a synonym of *Aucklandia costus* (according to <https://www.iplant.cn/>) and the latter a synonym of *Dolomiaea costus* (according to <https://powo.science.kew.org/>).

### 云木香

株高两米未超群  
暗紫花开疑作邻  
香起云川飘九域  
健脾消食入方频

### 土木香

矮株一见叶长圆  
总是相逢西北端  
枝上黄花迷蝶舞  
遣方入药助胎安

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/yc37514\\_um\\_edu\\_mo/Ecu1HczRHS8HuQa\\_LaBM5QwB1PEkCPBDgXwXSHY9P23QMA?nav=evlyZWZlcnJhbEluZm8iOnsicmVmZXJyYWxBChAIQijPbmVEcmI2ZUZycKj1c2luZXNzliwcmVmZXJyYWxBChBQbGF0Zm9ybSi6ldlYiIsInJmVycmF0Zm9kZSI6InZpZXciCjlyZWZlcnJhbFZpZXciOjIjNeUZpbGVzTGlua0NvcHkiX0&e=danozx](https://uofmacau-my.sharepoint.com/:v/g/personal/yc37514_um_edu_mo/Ecu1HczRHS8HuQa_LaBM5QwB1PEkCPBDgXwXSHY9P23QMA?nav=evlyZWZlcnJhbEluZm8iOnsicmVmZXJyYWxBChAIQijPbmVEcmI2ZUZycKj1c2luZXNzliwcmVmZXJyYWxBChBQbGF0Zm9ybSi6ldlYiIsInJmVycmF0Zm9kZSI6InZpZXciCjlyZWZlcnJhbFZpZXciOjIjNeUZpbGVzTGlua0NvcHkiX0&e=danozx)

Costus (*Aucklandia lappa*, Asteraceae, 云木香, left) and  
elecampane (*Inula helenium*, Asteraceae, 土木香, right)



[https://uofmacau-my.sharepoint.com/:v/g/personal/yc37514\\_um\\_edu\\_mo/Ecu1HczRHsBHuOa\\_LaBM5QwB1PEkCPBDgXwXSHY9P23QMA?nav=eyJyZWZlcjhhbEluZm8iOncicmVmZXJyYXwBcHAiOiJpbmVFcml2ZUZyck1lc2luZXNzIiwicmVmZXJyYXwBcHB0bGF0Zm9yb35iSjllZDlYlSlnIjZmVvcmlsTSW9kZS5lbnZpZCcilClvZWZlcjhhbFZpZCxiOiNeUzpbGvZTlGua0NvcHkifX0=&e=danozx](https://uofmacau-my.sharepoint.com/:v/g/personal/yc37514_um_edu_mo/Ecu1HczRHsBHuOa_LaBM5QwB1PEkCPBDgXwXSHY9P23QMA?nav=eyJyZWZlcjhhbEluZm8iOncicmVmZXJyYXwBcHAiOiJpbmVFcml2ZUZyck1lc2luZXNzIiwicmVmZXJyYXwBcHB0bGF0Zm9yb35iSjllZDlYlSlnIjZmVvcmlsTSW9kZS5lbnZpZCcilClvZWZlcjhhbFZpZCxiOiNeUzpbGvZTlGua0NvcHkifX0=&e=danozx)

