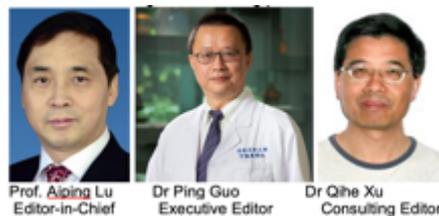


The February 2020 Newsletter of The GP-TCM Research Association



Dear GP-TCM RA Members and Friends,

This is the last issue I shall lead to produce as your Editor-in-chief. From March 2020, after having served as the EIC or co-editor of 89 issues and deputy editor for 53 issues of the GP-TCM and GP-TCM RA Newsletters, I shall adopt a new title, Consulting Editor. I look forward to work under the leadership of our new EIC, President Aiping Lu and our new Executive Editor Dr Ping Guo. We know that we can continue to count in your support!



Herein, I'd like to sincerely thank my past Deputy Editors, Prof Pierre Duez, Prof Yuan-Shiun Chang and Prof Xuanbin Wang. Thank you – I have thoroughly enjoyed your great support!

Highlights of the GP-TCM RA Newsletter February 2020:

- Li Wenliang
- European Reports
- Omics in Progress
- Can Bats Be Eaten?
- Invitations from WJTCM
- Placebo and Nocebo Effects
- Doctors and civil disobedience
- Invitation from Future Meetings
- The Ultimate qPCR Experiment
- Treasurer's 6-week visit to China
- Keep the EU and UK collaborating in science
- Sounding Board: Our thoughts are with China
- Reports on the 55th GP-TCM RA BoD Meeting
- Study reveals ginkgo trees' secret to longevity
- Framework for "N-of-1" Experimental Therapies
- Cellular and Molecular Probing of Intact Human Organs
- Reports on China and China's International Cooperation
- The exposome and health: Where chemistry meets biology
- Reports on Acupuncture, TCM and Other Traditional Medicine
- Therapeutic effects of garlic in cardiovascular atherosclerotic disease
- Special Highlights on "2019-nCoV" (aka "SARS-CoV2") and COVID-19
- Change of the Editorial Board leadership of the GP-TCM RA Newsletters
- Monthly Chinese Materia Medica Highlights: Wrinkly skinned chaenomeles and papaya



Acknowledgements: We thank Prof **Rudolf Bauer** (Graz), Prof **Hubiao Chen** (Hong Kong), Dr **Tai-Ping Fan** (Cambridge), Dr **Ping Guo** (Hong Kong), Dr **Clara Lau** (Hong Kong), Prof **Jianping Liu** (Beijing), Prof **Jiqing Liu** (Shenzhen), Prof. **Aiping Lu** (Hong Kong), Dr **Elizabeth Ren Qi** (Hong Kong), Prof **Nicola Robinson** (London), Dr **Helen Sheridan** (Dublin), Prof **Xuanbin Wang** (Shiyan), Prof **Vivian Wong** (Hong Kong), Dr **Qihe Xu** (London), Prof **Zhongzhen Zhao** (Hong Kong) and the **WJTCM Editorial Office** (Beijing) for their invaluable contributions.

We thank the SARS-CoV-2 images from NIAID-RML: <https://www.niaid.nih.gov/news-events/novel-coronavirus-sarscov2-images>

Images showing beautiful landscapes of China are borrowed from: https://mp.weixin.qq.com/s/pz_QI1gzTFy_rfgCS0leNw

Best wishes,

Qihe Xu

Your incumbent EIC and New Consulting Editor (London, UK)

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NEW Editorial

Keep the EU and UK collaborating in science

A petition organised by EU-LIFE, EuroScience, Wellcome, Young European Research Universities, Association of Medical Research Charities, Federation of European Academies of Medicine and Universities UK

On Friday (31st Jan. 2020) the UK ceased to be a member of the European Union. But that doesn't mean that international collaboration in science and research is any less essential. During 2020, the UK and the EU must urgently build a new partnership that can realise research's potential to contribute to a better world. Over the coming weeks, the UK and EU will decide their priorities and negotiations will begin. For science and research to flourish, it must be made a priority for negotiation. Therefore, we are stepping up our calls for a #DealForScience to make sure politicians in the UK and EU hear this message.



The petition reads as follows.

Researchers need certainty on scientific collaboration between the UK and EU.

Science has been a key success of the EU and must remain a priority to keep Europe competitive.

International collaboration makes science stronger and we should not let Brexit disrupt this.

Researchers need a long-term solution to allow them to continue working together on the big challenges our societies face, transforming peoples' lives for the better. It's essential that politicians quickly find a way to keep this collaboration as easy as possible.

We call on the EU and the UK to sign a research and innovation agreement as soon as possible.

This should include:

- *A commitment by European countries to work together to make the European Research Area a world leader in science;*
- *Full researcher mobility between the UK and the rest of Europe for all levels and career stages;*
- *A commitment to collaboration, including UK associate membership of Horizon Europe;*
- *Co-operation on regulations that support science.*

Sign our petition to show that science is stronger with international collaboration.

<https://www.openpetition.eu/petition/online/keep-the-eu-and-uk-collaborating-in-science-dealforscience>

Please share the petition within your networks and encourage others to support. The petition is now open to organisations as well as individuals, so please share with your institutions and professional bodies too. A new toolkit has been developed, including twitter card and email banner, so that you can easily share the petition through your emails, social media accounts and newsletters. Thank you for supporting the petition to keep the UK and EU collaborating on science. With your help the petition has been supported by over 5,000 people with representation from every EU Member State. By working together, we can protect science.

Related reading material: Wilson J. **For science, Brexit isn't done yet.** *Science* 2020;367:605. ... Prime Minister Johnson has stated that he wishes to see ongoing UK-EU collaboration in research and has pledged an £18 billion (GBP) doubling of public spending on research by 2025, as part of a renewed commitment to boosting overall research and development investment to 2.4% of gross domestic product. He also plans to rebalance research funding toward poorer regions of the country and to create a new agency for "high-risk, high-payoff research" modeled on the U.S. Defense Advanced Research Projects Agency. Even in the depths of a British winter, such largesse would normally provoke a warm response from the research community. But trust and confidence remain in short supply.

... In contrast to the Prime Minister's ebullience, Venki Ramakrishnan, president of the Royal Society, is one of many voices reminding us how much remains at stake over the next 12 months. "If we get it wrong, the damage could cripple the UK for at least a generation."

<https://science.sciencemag.org/content/367/6478/605?utm>

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Sounding Board:

NEW 1.



Our thoughts are with China

Dr. Helen Sheridan
A Member of the GP-TCM RA
Trinity College Dublin, Dublin, Ireland
E-mail: HSHERIDN@tcd.ie
<https://www.pharmacy.tcd.ie/staff/sheridan-cv.php>

Dear GP-TCM RA secretariat: I was thinking about China again today and the terrible effects that this Corona virus / COVID-19 is having on the wonderful people and beautiful country of China. I would like to express my support to our Chinese colleagues and thought perhaps the next GP-TCM RA newsletter could act as a vehicle for all the non-Chinese members of the Association to acknowledge the terrible effects of the outbreak on the people of China, and to offer our support. We are seeing video footage of the empty streets, and of the courageous medical people treating the sick. I understand this is a massive challenge for all. I am not sure how my country with its tiny population of 4.5 million would cope. I can only imagine chaos in our hospitals and on our streets. I wish all of my Chinese colleagues and their families and colleagues well, and will keep China and its people in my prayers. Best wishes!

Editorial comments: Echoing Dr Helen Sheridan's message, the GP-TCM RA wish to express our deep appreciation of China and Chinese people for their braveness and sacrifice in the ongoing fight against the SARS-CoV-2 outbreak. We particularly wish to salute all healthcare professionals and scientists who are at the frontline fighting the COVID-19 epidemic. Wherever you are, we wish you well and thank you from all GP-TCM RA members!



NEW 2. This column is reserved for comments, personal views, proposals for collaborations etc from our readers. Welcome to get in touch with your editors: Prof Aiping Lu (lap64067611@126.com), Dr Ping Guo (s193231@hkbu.edu.hk) and Dr Qihe Xu (qihe.xu@kcl.ac.uk).

Reports from the GP-TCM RA

NEW 1. **Change of the Editorial Board leadership of the GP-TCM RA Newsletters.** As approved by the Board of Directors of the GP-TCM RA at its 55th BoD teleconference, President of the GP-TCM RA will automatically become Editor-in-Chief of the GP-TCM RA Newsletters, who will be supported by an Executive Editor, as well as deputies and assistants, if indicated. Thus, from the March 2020 issue, the Editor-in-Chief and the Executive Editor will be Professor Aiping Lu and Dr Ping Guo, respectively. In a transitional period by the end of 2020, Dr Qihe Xu, the current Editor-in-Chief, will serve as the Consulting Editor, forming part of the Editorial Board leadership.

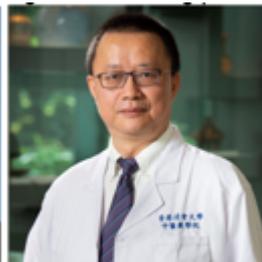
CVs of Prof Aiping Lu and Dr Qihe Xu can be found at the website of the Association.

<http://www.gp-tcm.org/about/bod-members/>

Our new Executive Editor, Dr Ping Guo (郭平), is a Senior Lecturer of the Teaching and Research Division at the School of Chinese Medicine, Hong Kong Baptist University (HKBU). He obtained his bachelor's degree (Chinese materia medica) in 1986, master's degree (Pharmacognosy) in 1989, and doctor's degree (Chinese materia medica) in 2004 from Chengdu University of Traditional Chinese Medicine (TCM). He has been engaged in teaching and research activities (Ethnopharmacology,



Prof. Aiping Lu
Editor-in-Chief



Dr Ping Guo
Executive Editor



Dr Qihe Xu
Consulting Editor

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Chinese materia medica, and Chinese medicinal identification) in higher education institutions of TCM since 1989. Dr Ping GUO won the President's Award for Outstanding Performance in Team Teaching in 2019 at HKBU.

https://scm.hkbu.edu.hk/en/expertise/detail/expertise_27.html



2. The 55th GP-TCM RA BoD Teleconference was held on Monday 17th February 2020. Chaired by Aiping Lu (President), the meeting was attended by BoD members Clara Lau (Secretary-General), Monique Simmonds (President-Elect), Rudi Bauer, Vivian Wong, Rob Verpoorte, Qihe Xu and Min Ye, and Interest Group Chairs Nicola Robinson and Mei Wang. Apologies were received from BoD members Abraham Chan, Pierre Duez, Thomas Efferth, Tai-Ping Fan and Rong-Rong He. Minutes were taken by Secretariat staff Dr Grace Yue. The meeting approved the minutes of the 54th BoD meeting. Clara reported that 5 new ordinary full membership and 1 new student membership applications have been approved since the last BoD meeting. So far, there are 5 Corporate members, 8 Institutional members, 29 Life members, 6 Honorary members, 177 ordinary full members and 23 student members, with a total of 248. On behalf of Tai-Ping, Clara reported that Tai-Ping and Monique will be the 2 new co-signatory persons for our Association account at HSBC. Audit of account, Charity Commission annual return, Preparation of the 8th GP-TCM RA Annual meeting in 2020 and potential hosts for the 9th and 10th GP-TCM RA Annual Meetings in 2021 and 2022 were discussed. The BoD decided to set up an Advisory Board and agreed to appoint new Honorary Members. The BoD agreed that, in future, President will serve as the Editor-in-Chief of the GP-TCM RA Newsletters, who may appoint any executive editor to help. After the Feb. 2020 issue, Aiping will start to serve as Editor-in-Chief of the GP-TCM RA Newsletters; Dr Ping Guo will serve as Executive Editor, while Qihe will serve as Consulting Editor. The BoD has accepted Christine Leon's request to retire from the Co-Chair post for the Quality Control Interest Group and appointed Prof Rudolf Bauer to be the new Co-Chair, to work along with Prof Min Ye, the IG Chair.



3. Treasurer's 6-week visit to China

Dr Tai-Ping Fan
Past President & Treasurer, BoD and ExC Member
GP-TCM RA
Angiogenesis and Natural Products Laboratory

Department of Pharmacology
University of Cambridge, UK. tpf1000@icloud.com

From 12 December 2019 to 28 January 2020, I went to China for an extensive visit including the following cities: Beijing, Shenzhen, Macao, Guangzhou, Dongguan, Kunming, Shanghai, Zhengzhou, Luoyang, Songxian, Jinan, Weifang, Harbin and Wenzhou. During this time, I attended 4 conferences in Shenzhen, Macao and Jinan (see below), and visited INFINITUS (corporate member), Heilongjiang University of TCM (institutional member). To recruit more corporate and institutional members, I also visited Authenmole, Guangdong HEC Technology, Beijing Genomics Institute as well as Yunnan University, Yunnan Agricultural University, Henan University of TCM, Harbin Medical University, Wenzhou Medical University. To extend the influences of GP-TCM RA, I presented seminars at Yunnan Science & Technology Department, Henan Academy of Sciences Key Laboratory of Natural Products, Songxian Agricultural Bureau, Minsheng Pharmaceutical, and Shunshi Pharmaceuticals in Luoyang. These new contacts, including International Universities Innovation Alliance (IUIA), have been invited to join GP-TCM RA, and possibly as partners of the proposed Cambridge Centre for Phyto-pharmaceutical Research.

Significantly, I visited Clinical Research Centre of AIDS Prevention and Treatment at Henan University of TCM First Affiliated Hospital, and had extensive discussions with Professor XU Li-Ran about future collaborations on TCM treatment for AIDS patients. At the 2020 IUIA Annual Conference in Jinan, I was awarded the Best Overseas Partner in recognition of my work in promoting international collaboration of TCM R&D. The IUIA has been working closely with Luoyang

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city government to initiate health-related projects, and is happy to offer spaces for joint projects with members of the GP-TCM RA. Please contact me if you are interested.

Although we managed to fly back from Beijing to London just before the Covid-19 outbreak, our thoughts are very much with our relatives, friends and collaborators in China. Let's hope the situation will settle down soon.

2nd International Conference on the Forefront of Integrative Medicine (Shenzhen, 14-16 Dec. 2019) Some exciting talks were presented by **Dean Felsher** (Stanford University School of Medicine, USA) *Reversible Cancer by Targeting Oncogenes through Natural Products and Existing Therapeutics*; **David Y Lee** (Harvard Medical School/McLean Hospital, USA) *Integration of Traditional Chinese Medicine to the Forefront of Medical Sciences in the 21st Century*; **Thomas Efferth** (Johannes Gutenberg University, Germany) *Cancer Network Pharmacology with Phytochemicals*; **Dominique Charron** (University Paris-Diderot, France) *Immunogenics at the Forefront of Precision/Integrative Medicine*; **Haimin Lei** (Beijing University of Chinese Medicine, China) *Scientific Connotation of TCM Compatibility and Discovery of Lead Compounds of TCM*; **Tai-Ping Fan** (University of Cambridge, UK) *A Novel Drug Discover Strategy Inspired by TCM Philosophies*, and **Wenxia Zhou** (Beijing Institute of Pharmacology & Toxicology, China) *Network-based Pharmacological Actions and Mechanisms of Liuwei Dihuang and Its New Formula LW-AFC on Aging & Alzheimer's disease*.



In celebration of the launch of Prof. LI Shaoping's book on Medicinal Mushrooms in Macau, a meeting on the medicinal properties of mechanisms of action of polysaccharides was held at the University of Macao on 17 Dec. 2019.



Visiting Yunnan University, Yunnan Agricultural University, Yunnan Science and Technology Department with Academician YANG Huan-ming of Beijing Genomics Institute (26-28 Dec. 2019)



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Visiting Ms Lisa Zhao and Mr Jacky Tang INFINITUS (corporate member) and Vice-President WANG Xi-Jun of Heilongjiang University of TCM (Institutional member)



The International Universities Innovation Alliance (IUIA) has been working closely with Luoyang city government to initiate health-related projects, and is happy to offer spaces for joint projects with members of the GP-TCM RA. I visited Vice-Mayor HE Min (L5) at Luoyang City Government with IUIA representative ZHAO Zi-yao, and local entrepreneurs in biomedicine.



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The Party Secretary HUI Xin-An of Weifeng City, Shangdong Province received Dr Abe Radkin (International Coordinator at Global Hope Coalition, Special Advisor to UNESCO Director-General), IUIA Secretary-General Dr SUN Wan-Song and me at a high level meeting to explore collaborations.



Visiting Prof. XU Li-ran's (徐立然) laboratory on HIV research and meeting with Academician YANG Bao-feng, immediate past President of Harbin Medical University



Giving a seminar to Taiwanese entrepreneurs in Shanghai



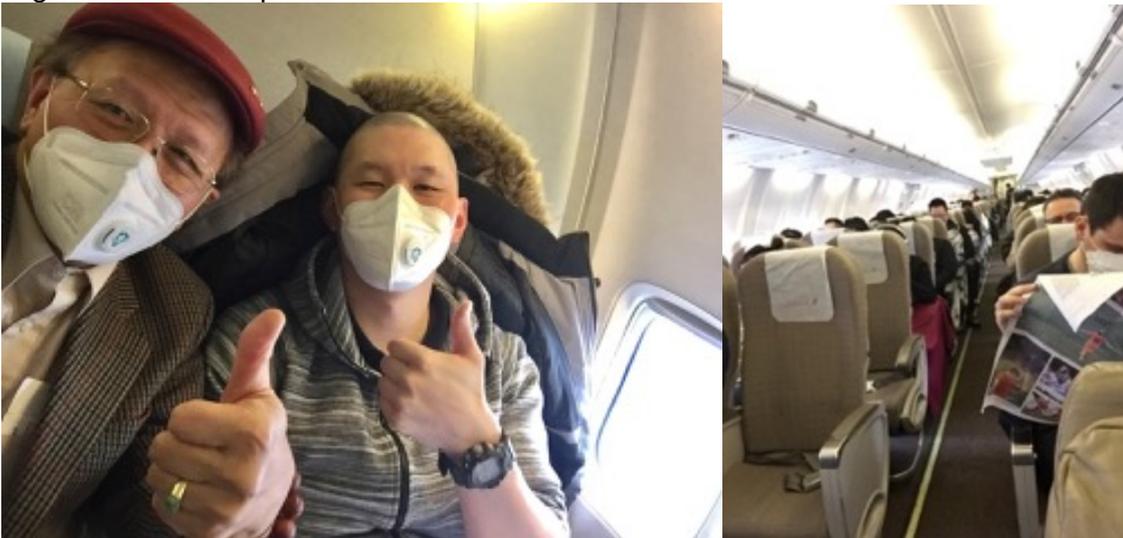
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Lunar New Year dinner (24 January 2020) with my Aunt and Uncle's family members



Because of the Covid-19 outbreak, flights and trains were seriously restricted. We were very lucky to get the two remaining seats on a flight from Wenzhou to Beijing. Everyone were wearing masks on our flight it was so quiet onboard.



Special Features

 1. Green A. Li **Wenliang**. *Lancet*. Online first, published on 21st Feb. 2020.



Ophthalmologist who warned about the outbreak of COVID-19. Born in Beizhen, China, on Oct 12, 1986, he died after becoming infected with SARS-CoV-2 in Wuhan, China, on Feb 7, 2020, aged 33 years.

On Dec 30, 2020, Li Wenliang sent a message to a group of fellow doctors warning them about a possible outbreak of an illness that resembled severe acute respiratory syndrome (SARS) in Wuhan, Hubei province, China, where he worked. Meant to be a private message, he encouraged them to protect themselves from infection. Days later, he was summoned to the Public Security

Bureau in Wuhan and made to sign a statement in which he was accused of making false statements that disturbed the public order...

"Rising doctors and nurses should remember Dr Li's name for doing the right and brave thing for his community and the world, and should be encouraged to do the same if they are ever in a moment to make that kind of difference in the world", Inglesby said.

<https://www.sciencedirect.com/science/article/pii/S0140673620303822?via%3Dihub>

<https://mp.weixin.qq.com/s/a3wylw06vTnW3NUIXVnzxQ> (中文)

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2. Can Bats Be Eaten? Ming Dynasty Li Shizhen Warns:

Can be used for medicinals but not for food (Correspondence by Dr Elizabeth Ren Qi; advised by Prof Zhongzhen Zhao, Hong Kong Baptist University). With the rapidly developing situation of the COVID-19, the entire world has been actively engaged in containing this new strain of coronavirus. While there are many working to find the cure and develop vaccines, many are also seeking the source of the virus. Over the years, several professional research institutes have provided research that bats



are the *natural reservoir* for various viruses, even suggesting that the newest COVID-19 originated in bats. Even with all this research suggesting otherwise, there still are people who choose to eat bats. Professor Zhongzhen Zhao, renowned professor of traditional Chinese medicinals at Hong Kong Baptist University, informed reporters that, even as early as the Ming Dynasty, famous medical scientist Li Shizhen warned against eating bats in his book, *Compendium of Materia Medica*.

Historically, Eating Bats Has Caused Deaths.

Once he saw the Internet videos of people eating bats, Prof Zhao was shocked, “Humans have eaten their way to bats? Can bats be eaten as a delicacy? In the *Compendium of Materia Medica* Section 48 under *Bats*, Li Shizhen had long advised that bats: *can be used in medicine but not as food.*”

Prof Zhongzhen Zhao also cited two famous cases in ancient times to prove how lethal consuming bats are: one, in the Tang Dynasty, Zizhen Chen had eaten a large bat and drained to death overnight; and two, in the Song Dynasty, Liang Liu died after taking a medicinal ball made of white bats and white toads.

In the *Compendium of Materia Medica*, Li Shizhen wrote: “Ancient materia medica once said that [bats] are ‘*non-toxic, induces joy and releases worry with long term use*’ which has been misunderstood...Bats are naturally draining and caused Zhizhen Chen’s death. After treating metal-inflicted wounds, it leads to dysentery and the toxicity is obvious.”

Which parts of a bat can be used in medicine then? Professor Zhao points out that it is the feces of the bat that is referred to as 夜明砂 (yèmíng shā). This medicinal functions to clear the liver and the eyes as well as to disperse obstruction and dissipate stagnation. In the *Compendium of Materia Medica*, Yeming sha is used to treat pediatric night blindness and other conditions.

Exotic Game Cannot Be Eaten Carelessly

“Historically speaking, our ancestors did not eat everything they saw. Why would pork, beef, lamb, duck and fish become the main delicacies rather than the meat of other animals?” Professor Zhao questions and answers, “This comes from generations of experience. Years of successful animal husbandry allows for sustainable usage of natural resources. Therefore, follow the path paved by our ancestors. Do not eat wild game to flaunt your wealth or to satisfy exotic challenges. There is an inevitable outcome for those who tempt fate.”

In the *Compendium of Materia Medica*, Li Shizhen provided a list of wild animals that weren’t to be eaten. Peacock meat is considered to be salty and cold in property with small toxicity and eating their meat will cause medicinals taken afterwards to be ineffective. While they look beautiful, Mandarin ducks have similar properties to peacock meat, but they may cause headaches which could end up becoming a long-term condition. Wild horse meat is astringent, bitter, and cold in property with toxicity. Ingesting wild horse meat could lead to engendering sores and dysentery. While bear meat is considered non-toxic, Li Shizhen warns that those with chronic conditions should not ingest bear meat. According to modern research, many wild animals, including wild boars, hares, marmots, hedgehogs, masked palm civets, pangolins, snakes, raccoons, etc., are hosts to several viruses and parasites.

Related reading on bats (蝙蝠) and pangolins (穿山甲) as potential hosts of SARS-CoV-2 and risks of eating bats and pangolins:

- <https://www.biomedviews.com/中國學者：新型冠狀病毒基因與 sars 接近%E3%80%80 可能來自/>
- Cyranoski D. Did pangolins spread the China coronavirus to people? *Nature* 7 Feb. 2020

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<https://www.nature.com/articles/d41586-020-00364-2>

<http://www.ebiotrade.com/newsf/2020-2/2020210171050322.htm> (中文)

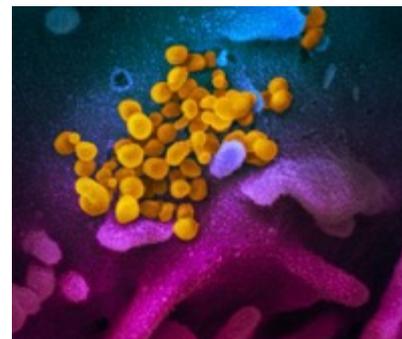
c. MOST investigates on pangolin and SARS-CoV-2:

<http://www.chinanews.com/gn/2020/02-15/9092507.shtml> (中文)

d. Li Shizhen on risks of eating bats and pangolins:

<http://m.qztz.com/p/72155.html> (中文)

<https://mp.weixin.qq.com/s/OAWhy18ZGtmyon3JZhejVQ> (中文)



Special Highlights on “2019-nCoV” (aka “SARS-CoV2”) and COVID-19

1. Loike JD. Opinion: Scientists’ Obligations During the COVID-19 Outbreak. *The Scientist* 14th Feb. 2020. Scientists can provide essential information to educate the public about the coronavirus. <https://www.the-scientist.com/news-opinion/opinion--scientists-obligations-during-the-covid-19-outbreak--67110?utm/>

2. New Images of Novel Coronavirus SARS-CoV-2 Now Available. NIAID’s Rocky Mountain Laboratories (RML) in Hamilton, Montana, produced images of the novel coronavirus (SARS-CoV-2, previously known as 2019-nCoV) on its scanning and transmission electron microscopes on Tuesday, Feb. 11, 2020. SARS-CoV-2 causes COVID-19 disease, which has grown to be a global public health emergency since cases were first detected in Wuhan, China, in December 2019. RML investigator Emmie de Wit, Ph.D., provided the virus samples as part of her studies, microscopist Elizabeth Fischer produced the images, and the RML visual medical arts office digitally colorized the images. Note that the images do not look much different from MERS-CoV (Middle East respiratory syndrome coronavirus, which emerged in 2012) or the original SARS-CoV (severe acute respiratory syndrome coronavirus, which emerged in 2002). That is not surprising: The spikes on the surface of coronaviruses give this virus family its name – corona, which is Latin for “crown,” and most any coronavirus will have a crown-like appearance. These images are available to the public for free high-resolution download on the NIAID Flickr page. NIAID asks all who use the images to please credit NIAID-RML.

<https://www.niaid.nih.gov/news-events/novel-coronavirus-sarscov2-images>

3. Luo H, et al. Can Chinese Medicine Be Used for Prevention of Corona Virus Disease 2019 (COVID-19)? A Review of Historical Classics, Research Evidence and Current Prevention Programs. *Chin J Integr Med.* 2020 Feb 17. doi: 10.1007/s11655-020-3192-6. [Epub ahead of print]. OBJECTIVE: Since December 2019, an outbreak of corona virus disease 2019 (COVID-19) occurred in Wuhan, and rapidly spread to almost all parts of China. This was followed by prevention programs recommending Chinese medicine (CM) for the prevention. In order to provide evidence for CM recommendations, we reviewed ancient classics and human studies. METHODS: Historical records on prevention and treatment of infections in CM classics, clinical evidence of CM on the prevention of severe acute respiratory syndrome (SARS) and H1N1 influenza, and CM prevention programs issued by health authorities in China since the COVID-19 outbreak were retrieved from different databases and websites till 12 February, 2020. Research evidence included data from clinical trials, cohort or other population studies using CM for preventing contagious respiratory virus diseases. RESULTS: The use of CM to prevent epidemics of infectious diseases was traced back to ancient Chinese practice cited in Huangdi’s Internal Classic (Huang Di Nei Jing) where preventive effects were recorded. There were 3 studies using CM for prevention of SARS and 4 studies for H1N1 influenza. None of the participants who took CM contracted SARS in the 3 studies. The infection rate of H1N1 influenza in the CM group was significantly lower than the non-CM group (relative risk 0.36, 95% confidence interval 0.24-0.52; n=4). For prevention of COVID-19, 23 provinces in China issued CM programs. The main principles of CM use were to tonify qi to protect from external pathogens, disperse wind and discharge heat, and resolve dampness. The most frequently used herbs included Radix astragali (Huangqi), Radix



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glycyrrhizae (Gancao), Radix saposhnikoviae (Fangfeng), Rhizoma Atractylodis Macrocephalae (Baizhu), Lonicerae Japonicae Flos (Jinyinhua), and Fructus forsythia (Lianqiao). CONCLUSIONS: Based on historical records and human evidence of SARS and H1N1 influenza prevention, Chinese herbal formula could be an alternative approach for prevention of COVID-19 in high-risk population. Prospective, rigorous population studies are warranted to confirm the potential preventive effect of CM.

<https://link.springer.com/article/10.1007%2Fs11655-020-3192-6>

Related reading materials:

TCM management of plague.

<https://mp.weixin.qq.com/s/QIQ2A9cc3BDLYWiOPHZKrQ> (中文)

Moxa smoke: Effective preventative measure against disease or plague?

https://mp.weixin.qq.com/s/ZTjZZpHbEPVJgoh9JoM8_A (中文)

<https://www.ncbi.nlm.nih.gov/pubmed/23762143>

4. Enserrick M. Update: 'A bit chaotic.' Christening of new coronavirus and its disease name create confusion. *Science* Feb. 12, 2020, 2:40 PM. ...The discrepancy comes from WHO and CSG following completely different routes to their labels. WHO—whose experts didn't consult with Chinese officials, a WHO spokesperson says—named the disease sticking to a few generally accepted principles. Disease names can't refer to people, groups of people, or geographical locations, which can be stigmatizing; they also shouldn't include names of animals, which can be misleading because some animal viruses jump species and become a human pathogen, as SARS-CoV-2 has done. WHO's chosen name, COVID-19, is just short for coronavirus disease 2019. (The first known pneumonia cases from the virus occurred in Wuhan, China, in December 2019.) The name offends no one and can be recycled if other coronaviruses jump from animals to humans in the years ahead. For the virus, CSG took a scientific approach, says its chair, virologist John Ziebuhr of Justus Liebig University Giessen. Based on its recently sequenced genome, the new virus belongs to the same species as the virus that caused the SARS epidemic of 2002–03, which is called SARS-related coronavirus. ("Species" are difficult to define in viruses, whose genomes change all the time, but Gorbalenya's group has come up with a system to do so for coronaviruses, described in two papers in 2012, that is generally accepted, says Raoul de Groot of Utrecht University, who's also a member of CSG.) The virus may be novel to the rest of the world, but it isn't really to taxonomists, Ziebuhr says, so it's not getting its own name. Instead, the committee appended a "2" for viruses isolated from patients in Wuhan and elsewhere. It wouldn't be the first time a virus and a disease have different names: the variola virus causes smallpox, for instance, and AIDS is caused by HIV... <https://www.sciencemag.org/news/2020/02/bit-chaotic-christening-new-coronavirus-and-its-disease-name-create-confusion>

5. Heymann DL. Data sharing and outbreaks: best practice exemplified. *Lancet* 2020;395:469-70. The current outbreak of the 2019 novel coronavirus (2019-nCoV) is yet another example of the importance of infections at the animal–human interface, and the concerns that arise from the emergence of a newly identified organism as it spreads through human populations and across national and international borders. At the beginning of an outbreak such as this, readily available information is important to begin the assessment necessary to understand the risks and begin outbreak containment activities. This information includes initial reports from the outbreak site and from laboratories supporting the initial investigation, and information obtained from previous outbreaks with similar organisms. But what is not known is of equal importance. Information is required that will help refine the risk assessment as the outbreak continues and ensure that patients are managed in the best possible way. This information includes routes of transmission and transmissibility, the natural history of infection in humans,



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the populations at risk, the successful clinical practices that are being used to manage patients, the laboratory information needed to diagnose patients, and the genetic sequence information used to assess viral stability. Much of this information is emerging in real time, challenging our understandings and nonetheless refining our responses. The two Articles that have been published in *The Lancet* provide some of this information:...

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30184-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30184-7/fulltext)

6. Wu JT, Leung K, Leung GM. Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: A modelling study. *Lancet* online published 31st Jan. 2020. 10.1016/S0140-6736(20)30260-9 (2020). The study concluded: "Given that 2019-nCoV is no longer contained within Wuhan, other major Chinese cities are probably sustaining localised outbreaks. Large cities overseas with close transport links to China could also become outbreak epicentres, unless substantial public health interventions at both the population and personal levels are implemented immediately. Independent self-sustaining outbreaks in major cities globally could become inevitable because of substantial exportation of presymptomatic cases and in the absence of large-scale public health interventions. Preparedness plans and mitigation interventions should be readied for quick deployment globally."

<https://www.sciencedirect.com/science/article/pii/S0140673620302609>

Commented by: Lin L-H. **Maybe not an overaction.** *Science Translational Medicine*. 12 Feb 2020: Vol. 12, Issue 530, eaba9019. The commentary concluded: "Despite opposition from Beijing and officials of the World Health Organization, who stressed concerns over the economy, by early February 2020 several countries—including Australia, Israel, Indonesia, and the United States—had imposed tight restrictions on travel to China and other countries at risk of outbreak. In the meantime, cases continued to increase exponentially in more than 20 cities with ground transport links to Wuhan. Although the accuracy of the above estimation is currently unknown, this mathematical model and similar ones might have motivated precautions that so far prevented a global disaster."



7. Wang C et al. A novel coronavirus outbreak of global health concern. *Lancet* 2020;395:470-3. In December 2019, Wuhan, Hubei province, China, became the centre of an outbreak of pneumonia of unknown cause, which raised intense attention not only within China but internationally. Chinese health authorities did an immediate investigation to characterise and control the disease, including isolation of people suspected to have the disease, close monitoring of contacts, epidemiological and clinical data collection from patients, and development of diagnostic and treatment procedures. By Jan 7, 2020, Chinese scientists had isolated a novel coronavirus (CoV) from patients in Wuhan. The genetic sequence of the 2019 novel coronavirus (2019-nCoV) enabled the rapid development of point-of-care real-time RT-PCR diagnostic tests specific for 2019-nCoV (based on full genome sequence data on the Global Initiative on Sharing All Influenza Data [GISAID] platform). Cases of 2019-nCoV are no longer limited to Wuhan. Nine exported cases of 2019-nCoV infection have been reported in Thailand, Japan, Korea, the USA, Vietnam, and Singapore to date, and further dissemination through air travel is likely... We have to be aware of the challenge and concerns brought by 2019-nCoV to our community. Every effort should be given to understand and control the disease, and the time to act is now.

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30185-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30185-9/fulltext)

8. Three *Lancet* reports on COVID-19 in No. 10223, volume 395, published on 15 Feb. 2020.

- Huang C et al. **Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China** : [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30183-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30183-5/fulltext)
- Chen N et al. **Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study**: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30211-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30211-7/fulltext)

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- Chan JFW et al. **A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster** [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30154-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30154-9/fulltext)

Now 9. **A gateway to NEJM reports on SARS-Cov2 and COVID-19**
<https://www.nejm.org/coronavirus?query=TOC>

Now 10. Zhang Y et al. **The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China.** *Chin J Epidemiol* 2020;41(02):145-151. A total of 72 314 patient records—44 672 (61.8%) confirmed cases, 16 186 (22.4%) suspected cases, 10567 (14.6%) clinical diagnosed cases (Hubei only), and 889 asymptomatic cases (1.2%)—contributed data for the analysis. Among confirmed cases, most were aged 30–79 years (86.6%), diagnosed in Hubei (74.7%), and considered mild (80.9%). A total of 1 023 deaths occurred among confirmed cases for an overall case-fatality rate of 2.3%. The COVID-19 spread outward from Hubei sometime after December 2019 and by February 11, 2020, 1 386 counties across all 31 provinces were affected. The epidemic curve of onset of symptoms peaked in January 23–26, then began to decline leading up to February 11. A total of 1 716 health workers have become infected and 5 have died (0.3%). Conclusions: The COVID-19 epidemic has spread very quickly. It only took 30 days to expand from Hubei to the rest of Mainland China. With many people returning from a long holiday, China needs to prepare for the possible rebound of the epidemic.



<http://rs.yiigle.com/yufabiao/1181998.htm>

https://mp.weixin.qq.com/s/Z3jV_4xQQNx15lwYL06mrg (中文)

Now 11. Li G and De Clercq E. **Therapeutic options for the 2019 novel coronavirus (2019-nCoV).** *Nature Reviews Drug Discovery* 10 FEBRUARY 2020. doi: 10.1038/d41573-020-00016-0. Therapeutic options in response to the 2019-nCoV outbreak are urgently needed. Here, we discuss the potential for repurposing existing antiviral agents to treat 2019-nCoV, some of which are already moving into clinical trials... <https://mp.weixin.qq.com/s/TS5rKdNr4JjNaAQ5RgM28A> (中文)

Now 12. **Evidence of SARS-CoV-2 Infection in Returning Travelers from Wuhan, China.** *N Engl J Med* February 18, 2020. DOI: 10.1056/NEJMc2001899. “In this effort to evacuate 126 people from Wuhan to Frankfurt, a symptom-based screening process was ineffective in detecting SARS-CoV-2 infection in 2 persons who later were found to have evidence of SARS-CoV-2 in a throat swab. We discovered that shedding of potentially infectious virus may occur in persons who have no fever and no signs or only minor signs of infection.”

<https://www.nejm.org/doi/full/10.1056/NEJMc2001899?query=RP>

Now 13. Offord C. **How COVID-19 Is Spread.** *The Scientist.* Feb 21, 2020. Scientists’ latest understanding of the facts, the suspicions, and the discounted rumors of SARS-CoV-2’s transmission from person to person...

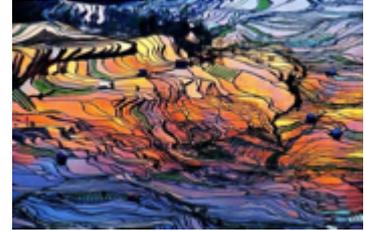
<https://www.the-scientist.com/news-opinion/how-covid-19-is-spread-67143?utm>

Now 14. Bao Y et al. **2019-nCoV epidemic: address mental health care to empower society.** *Lancet* 2020;395:e37-e38. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30309-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30309-3/fulltext)

Now 15. Lu R et al. **Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding.** *Lancet* 2020;395:565-574. 2019-nCoV is sufficiently divergent from SARS-CoV to be considered a new human-infecting betacoronavirus. Although our phylogenetic analysis suggests that bats might be the original host of this virus, an animal sold at the seafood market in Wuhan might represent an intermediate host facilitating the emergence of the virus in humans. Importantly, structural analysis suggests that 2019-nCoV might be able to bind to the angiotensin-converting enzyme 2 receptor in humans. The future evolution, adaptation, and spread of this virus warrant urgent investigation...

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30251-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30251-8/fulltext)

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16. Yu W et al. Decoding evolution and transmissions of novel pneumonia coronavirus using the whole genomic data. Submit to Chinaxiv on 02 212020. ... In this study, we used 93 complete genomes of SARS-CoV-2 from the GISAID EpiFluTM database to decode the evolution and human-to-human transmissions of SARS-CoV-2 in the recent two months... **Findings.** Eight coding-regions have 120 substitution sites, including 79 non-synonymous and 40 synonymous substitutions. Forty-two non-synonymous substitutions changed the biochemical property of amino acids. No evident combination was found. Fifty-eight haplotypes were classified as five groups, and 31 haplotypes were found in samples from both China and other countries, respectively. The rooted network suggested H13 and H35 to be ancestral haplotypes, and H1 (and its descendent haplotypes including all samples from the Hua Nan market) was derived H3 haplotype. Population size of SARS-CoV-2 were estimated to have a recent expansion on 6 January 2020, and an early expansion on 8 December 2019. **Interpretation.** Genomic variations of SARS-CoV-2 are still low in comparisons with published genomes of SARS-CoV and MERS-CoV. **Phyloepidemiologic analyses indicated the SARS-CoV-2 source at the Hua Nan market should be imported from other places.** The crowded market boosted SARS-CoV-2 rapid circulations in the market and spread it to the whole city in early December 2019. Furthermore, phyloepidemiologic approaches have recovered specific direction of human-to-human transmissions, and the import sources of international infectious cases.
<http://www.chinaxiv.org/abs/202002.00033>
<https://www.360zhyx.com/home-research-index-rid-73201.shtml> (中文)

17. Zou L et al. SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients. *N Engl J Med* 19-02-2020. DOI: 10.1056/NEJMc2001737. The authors report results of an analysis of nasal and throat swabs from 17 patients in Zhuhai, China, who had received a diagnosis of Covid-19. Higher viral loads soon after symptom onset indicate the need for isolation strategies different from those used for the earlier SARS epidemic. The authors wrote: "Our analysis suggests that the viral nucleic acid shedding pattern of patients infected with SARS-CoV-2 resembles that of patients with influenza and appears different from that seen in patients infected with SARS-CoV. The viral load that was detected in the asymptomatic patient was similar to that in the symptomatic patients, which suggests the transmission potential of asymptomatic or minimally symptomatic patients... Identification of patients with few or no symptoms and with modest levels of detectable viral RNA in the oropharynx for at least 5 days suggests that we need better data to determine transmission dynamics and inform our screening practices."
https://www.nejm.org/doi/full/10.1056/NEJMc2001737?query=featured_home
https://mp.weixin.qq.com/s/_Tdm4p6nFDnDzVhR7aVqvQ (中文)

18. Maxmen A. More than 80 clinical trials launch to test coronavirus treatments. *Nature* 15th Feb. 2020. As HIV drugs, stem cells and traditional Chinese medicines vie for a chance to prove their worth, the World Health Organization attempts to bring order to the search.
<https://www.nature.com/articles/d41586-020-00444-3>
<http://www.ebiotrade.com/newsf/2020-2/2020218114623458.htm> (中文)

19. Nature/Science warnings on global spread of the novel coronavirus epidemic
<https://mp.weixin.qq.com/s/Fg1903qAV0HkaTS3e1BG8Q> (中文)
<https://www.nature.com/articles/d41586-020-00551-12>
<https://www.sciencemag.org/news/2020/02/coronavirus-seems-unstoppable-what-should-world-do-now>
<https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/news--wuhan-coronavirus/>

European Reports

1. The Innovative Medicine Initiative 2 (IMI2) intends to launch a fast-track call on COVID-19 at the beginning of March 2020. The indicative budget for the call is €45 million.
<https://www.imi.europa.eu/news-events/newsroom/imi-planning-eur-45-million-call-proposals-covid-19>
<https://www.imi.europa.eu/apply-funding/future-topics>

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2. EC's FAQ updated to reflect the withdrawal of the UK on 4 February 2020. The question specifically address the eligibility of UK participants in the upcoming expression of interest SC1-PHE-CORONAVIRUS-2020, however is applicable to all calls under Horizon 2020.

"The Withdrawal Agreement as agreed between the European Union and the United Kingdom entered into force on 1 February 2020. In overall terms, on the basis of the Withdrawal Agreement, the UK-based legal entities will continue to be fully eligible to participate and receive funding in the current 2014-2020 EU programmes, including Horizon 2020, as if the UK were a member state until the closure of these programmes, unless security considerations apply. This means that UK beneficiaries can continue – without interruption – to receive grants awarded under the current and previous MFFs until their end dates, even if these are after 2020."



3. Stokstad E. United Kingdom breaks from EU farm subsidies.

Science 2020;367:348-9. When the United Kingdom leaves the European Union at the end of the month, it will sever ties with Europe's farm subsidy policies—and to many researchers, that is a good thing. Last week, the U.K. government proposed radical changes to £3 billion a year in agricultural spending that will focus the money on benefits to climate, ecosystems, and the public. "It's dramatic and utterly critical," says Dieter Helm, an economist at the University of Oxford. "This is an agricultural revolution"...

<https://science.sciencemag.org/content/367/6476/348?utm>

4. UK unveils new visa program for scientists. *The Scientist*; 27/01/2020. The fast-track Global Talent visa will have no cap on the number of researchers able to come to the UK.

<https://www.the-scientist.com/news-opinion/uk-to-recruit-top-scientists-in-new-visa-program-67018?utm>

5. Kupferschmidt K. After Brexit, a long road to mend ties with Europe. *Science* 31 JAN 2020 : 494. U.K. scientists want to join EU research program, but Europe may balk.

<https://science.sciencemag.org/content/367/6477/494>

6. Crisp N et al. The UK as a global centre for health and health science. *Lancet* 2020;385:398-99. In 2015, the UK's All-Party Parliamentary Group on Global Health (APPG) mapped the UK's contribution to health globally, showing that it had world-class universities and research, was a global leader in health policy and international development, had strong life sciences and biomedical and biotech industries, and had a vibrant and diverse not-for-profit sector. In 2019, the APPG looked at what had changed in the intervening time and in the context of understanding the likely impact of Brexit on the UK's global role in health. We gathered data from published and unpublished sources and interviewed 78 health and academic leaders—half from the UK and half from other countries—about their perceptions of the UK's current and potential future role. On Feb 6, 2020, the APPG publishes its new report, *The UK as a Global Centre for Health and Health Science*...

<http://www.appg-globalhealth.org/uk/>

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30236-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30236-1/fulltext)

Reports on China and China's International Cooperation

1. Single-use plastic: China to ban bags and other items. BBC 20 January 2020

<https://www.bbc.com/news/amp/world-asia-china-51171491>

2. China calls for high-level cooperation in science and technology

http://www.xinhuanet.com/english/2019-11/03/c_138525725.htm

3. Chinese scientists create new genome editing method for rice

http://www.xinhuanet.com/english/2020-01/14/c_138704265.htm

4. Chinese study finds aromas help plants resist cold weather

http://www.xinhuanet.com/english/2020-01/04/c_138678414.htm

5. Tourists to China can finally use its massively popular mobile payment systems

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<https://www.cnn.com/2019/11/06/alipay-wechat-pay-allow-tourists-in-china-to-use-foreign-cards.html>

6. Mervis J. Florida center details fired scientists' links to China. *Science* 2020;367:351-352. Six Florida cancer researchers who were dismissed last month for hiding their ties to a Chinese medical university appear to have been motivated by simple greed and a disregard for both institutional and federal rules... <https://science.sciencemag.org/content/367/6476/351?utm>

7. Xue Y. Smoking cessation programmes in China. *Lancet* 2020;395:PE28. The Editors discuss China's commitment to improving the occupational health of its 776 million workers and outline a range of important health risks faced by this population (eg, dust, chemicals, and poison); however, they forget to mention one of the most critical hazards that they endure: smoking in the workplace. In contrast to many parts of the western world, in China workplace smoking remains common and is a major source of environmental tobacco smoke exposure. According to a 2018 survey, 50.9% of adults who worked indoors were exposed to smoke on the job. This statistic, though troubling, also represents an opportunity: the elimination of smoke from the workplace could simultaneously improve employee health, boost productivity, and decrease health-care costs. According to WHO, in 2014, expenses from tobacco-related illnesses cost China ¥53 billion (about US\$9 billion), accounting for 1.5% of the total national health-care expenditures that year. Additionally, loss in productivity from smoking-related illnesses led to indirect costs of ¥297 billion (about \$48 billion). In this respect, efforts to reduce workplace smoking can be viewed as both a way to save lives and to save money. If, as was reported by *The Lancet*, the Chinese Government plans to prioritise occupational health, it stands to reason that they should also prioritise tobacco control. And, on this front, the country has made some progress in recent years. Since 2017, 18 cities have introduced bans and other regulations that appear to be reducing the prevalence of smoking, albeit slowly. In Beijing, for example, smoking in adults has dropped from a rate of 23.4% in 2014 to a rate of 22.3% in 2019, which amounts to about 200 000 fewer smokers. In Shanghai, between 2017 and 2018, smoking rates decreased by 0.3%—nudging the adult prevalence below 20% for the first time in decades...



[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)32558-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32558-9/fulltext)

8. Xie E. China bans trade, eating of wild animals in battle against coronavirus. *South China Morning Post* 24th Feb. 2020.

- Fast-tracked decision to prohibit consumption of wildlife comes into effect immediately
- China's wildlife trade and consumption industry is valued at 520 billion yuan (US\$74 billion), according to a government-sponsored report published in 2017
- **Mallapaty S.** China set to clamp down permanently on wildlife trade in wake of coronavirus. *Nature* 21st Feb. 2020. <https://www.nature.com/articles/d41586-020-00499-2>
- https://mp.weixin.qq.com/s/q3AQnq7D_ERI9-x3octe7A (中文)

Acupuncture, TCM and Other Traditional Medicine

1. CMS finalizes decision to cover Acupuncture for Chronic Low Back Pain for Medicare beneficiaries. CMS.gov 21st Jan. 2020
<https://www.cms.gov/newsroom/press-releases/cms-finalizes-decision-cover-acupuncture-chronic-low-back-pain-medicare-beneficiaries?utm>

2. Yu C et al. Does Moxa Smoke Have Significant Effect on the Acupuncturist's Respiratory System? A Population-Based Study. *Evid Based Complement Alternat Med.* 2019;2019: 4873235. The study concluded: "CONCLUSIONS: Moxa smoke exposure has no significant effect on the respiratory health of acupuncturists."
<https://www.hindawi.com/journals/ecam/2019/4873235/>

3. Dr Yuling Ma, Oxford University, tells about her journey of Chinese Medicine research
<https://mp.weixin.qq.com/s/wXpK9-O4wYAfMs-UjaQ>
<https://www.dpag.ox.ac.uk/team/yu-ling-ma>

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Omics in Progress

1. Slavov N. Unpicking the proteome in single cells. *Science* 2020;367: 512-513. Recently, the throughput of single-cell RNA-sequencing (transcriptomics) and genomics technologies has increased more than a 1000-fold. This increase has powered new analyses: Whereas traditional analysis of bulk tissue averages all differences between the diverse cells comprising such samples, single-cell analysis characterizes each individual cell and thus has enabled the discovery and classification of previously unknown cell states. Yet, the nucleic-acid-based technologies are effectively blind to an important group of biological regulators: proteins. Fortunately, emerging mass-spectrometry (MS) technologies that identify and quantify proteins promise to deliver similar gains to single-cell protein analysis. These proteomic technologies will enable high-throughput investigation of key biological questions, such as signaling mechanisms based on protein binding, modifications, and degradation, that have long remained elusive...



<https://science.sciencemag.org/content/367/6477/512/>

2. Parker CG. et al. Click Chemistry in Proteomic Investigations. *Cell* Published: February 13, 2020. DOI:<https://doi.org/10.1016/j.cell.2020.01.025>. Despite advances in genetic and proteomic techniques, a complete portrait of the proteome and its complement of dynamic interactions and modifications remains a lofty, and as of yet, unrealized, objective. Specifically, traditional biological and analytical approaches have not been able to address key questions relating to the interactions of proteins with small molecules, including drugs, drug candidates, metabolites, or protein post-translational modifications (PTMs). Fortunately, chemists have bridged this experimental gap through the creation of bioorthogonal reactions. These reactions allow for the incorporation of chemical groups with highly selective reactivity into small molecules or protein modifications without perturbing their biological function, enabling the selective installation of an analysis tag for downstream investigations. The introduction of chemical strategies to parse and enrich subsets of the “functional” proteome has empowered mass spectrometry (MS)-based methods to delve more deeply and precisely into the biochemical state of cells and its perturbations by small molecules. In this Primer, we discuss how one of the most versatile bioorthogonal reactions, “click chemistry”, has been exploited to overcome limitations of biological approaches to enable the selective marking and functional investigation of critical protein-small-molecule interactions and PTMs in native biological environments. [https://www.cell.com/cell/fulltext/S0092-8674\(20\)30106-9](https://www.cell.com/cell/fulltext/S0092-8674(20)30106-9)

3. Dou Y et al. Proteogenomic Characterization of Endometrial Carcinoma. *Cell*. Online published: February 13, 2020. DOI: <https://doi.org/10.1016/j.cell.2020.01.026>. We undertook a comprehensive proteogenomic characterization of 95 prospectively collected endometrial carcinomas, comprising 83 endometrioid and 12 serous tumors. This analysis revealed possible new consequences of perturbations to the p53 and Wnt/ β -catenin pathways, identified a potential role for circRNAs in the epithelial-mesenchymal transition, and provided new information about proteomic markers of clinical and genomic tumor subgroups, including relationships to known druggable pathways. An extensive genome-wide acetylation survey yielded insights into regulatory mechanisms linking Wnt signaling and histone acetylation. We also characterized aspects of the tumor immune landscape, including immunogenic alterations, neoantigens, common cancer/testis antigens, and the immune microenvironment, all of which can inform immunotherapy decisions. Collectively, our multi-omic analyses provide a valuable resource for researchers and clinicians, identify new molecular associations of potential mechanistic significance in the development of endometrial cancers, and suggest novel approaches for identifying potential therapeutic targets. [https://www.cell.com/cell/fulltext/S0092-8674\(20\)30107-0](https://www.cell.com/cell/fulltext/S0092-8674(20)30107-0)

4. Kalucka J et al. Single-Cell Transcriptome Atlas of Murine Endothelial Cells. *Cell*. Online published February 13, 2020. DOI:<https://doi.org/10.1016/j.cell.2020.01.015>. The heterogeneity of

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endothelial cells (ECs) across tissues remains incompletely inventoried. We constructed an atlas of >32,000 single-EC transcriptomes from 11 mouse tissues and identified 78 EC subclusters, including *Aqp7*⁺ intestinal capillaries and angiogenic ECs in healthy tissues. ECs from brain/testis, liver/spleen, small intestine/colon, and skeletal muscle/heart pairwise expressed partially overlapping marker genes. Arterial, venous, and lymphatic ECs shared more markers in more tissues than did heterogeneous capillary ECs. ECs from different vascular beds (arteries, capillaries, veins, lymphatics) exhibited transcriptome similarity across tissues, but the tissue (rather than the vessel) type contributed to the EC heterogeneity. Metabolic transcriptome analysis revealed a similar tissue-grouping phenomenon of ECs and heterogeneous metabolic gene signatures in ECs between tissues and between vascular beds within a single tissue in a tissue-type-dependent pattern. The EC atlas taxonomy enabled identification of EC subclusters in public scRNA-seq datasets and provides a powerful discovery tool and resource value.

[https://www.cell.com/cell/fulltext/S0092-8674\(20\)30062-3](https://www.cell.com/cell/fulltext/S0092-8674(20)30062-3)

5. Brubaker DK, Lauffenburger DA. **Translating preclinical models to humans.** *Science* 2020;367:742-743. Computational models for cross-species translation could improve drug development... <https://science.sciencemag.org/content/367/6479/742>

Other Recommended Readings

1. Brierley J et al. **Framework for “N-of-1” Experimental Therapies.** *N Engl J Med* 2020; 382:e7. More than a decade ago, recognizing the increased use of “N-of-1” therapies and the lack of governance of these therapies, we proposed a framework,... Our model offers an institutional approach to the issues raised by Woodcock and Marks...

<https://www.nejm.org/doi/full/10.1056/NEJMc1915778?query=TOC>

2. Vermeulen R et al. **The exposome and health: Where chemistry meets biology.** *Science* 2020;367:392-396. Despite extensive evidence showing that exposure to specific chemicals can lead to disease, current research approaches and regulatory policies fail to address the chemical complexity of our world. To safeguard current and future generations from the increasing number of chemicals polluting our environment, a systematic and agnostic approach is needed. The “exposome” concept strives to capture the diversity and range of exposures to synthetic chemicals, dietary constituents, psychosocial stressors, and physical factors, as well as their corresponding biological responses. Technological advances such as high-resolution mass spectrometry and network science have allowed us to take the first steps toward a comprehensive assessment of the exposome. Given the increased recognition of the dominant role that nongenetic factors play in disease, an effort to characterize the exposome at a scale comparable to that of the human genome is warranted.

<https://science.sciencemag.org/content/367/6476/392?utm>

3. The Lancet. **Doctors and civil disobedience.** *Lancet* 2020;395:248. Civil disobedience—a public, non-violent action in breach of the law aimed at changing the law or policies of a government—is not a typical tool of the medical trade. But frustration with inaction on the global climate emergency has galvanised doctors and other health professionals to join public protests, some of which have involved breaking the law, thus incurring considerable personal and professional risk. Robin Stott, in an Essay this week, describes his experience of arrest during an Extinction Rebellion protest in London, highlighting how a duty of care can compel one to act disobediently in the clear interest of public health...

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30120-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30120-3/fulltext)

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)33058-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)33058-2/fulltext)

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)32985-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32985-X/fulltext)

4. Taylor SC et al. **The Ultimate qPCR Experiment: Producing Publication Quality, Reproducible Data the First Time.** *Trends Biotechnol.* 2019;37:761-774. Quantitative PCR (qPCR)



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is one of the most common techniques for quantification of nucleic acid molecules in biological and environmental samples. Although the methodology is perceived to be relatively simple, there are a number of steps and reagents that require optimization and validation to ensure reproducible data that accurately reflect the biological question(s) being posed. This review article describes and illustrates the critical pitfalls and sources of error in qPCR experiments, along with a rigorous, stepwise process to minimize variability, time, and cost in generating reproducible, publication quality data every time. Finally, an approach to make an informed choice between qPCR and digital PCR technologies is described.

<https://www.sciencedirect.com/science/article/pii/S0167779918303421?via%3Dihub>

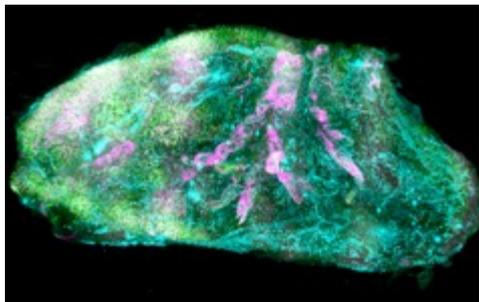
5. Study reveals ginkgo trees' secret to longevity

http://www.xinhuanet.com/english/2020-01/18/c_138716250.htm

6. Sobenin IA et al. Therapeutic effects of garlic in cardiovascular atherosclerotic disease. *Chin J Nat Med.* 2019;17:721-728. Garlic (*Allium sativum*) is a widely known medicinal plant, potential of which remains to be fully evaluated. Its wide-range beneficial effects appear to be relevant for treatment and prevention of atherosclerosis and related diseases. It is generally believed that garlic-based preparations are able to improve lipid profile in humans, inhibit cholesterol biosynthesis, suppress low density lipoprotein oxidation, modulate blood pressure, suppress platelet aggregation, lower plasma fibrinogen level and increase fibrinolytic activity, thus providing clinically relevant cardioprotective and anti-atherosclerotic effects. It is important to assess the level of evidence available for different protective effects of garlic and to understand the underlying mechanisms. This information will allow adequate integration of garlic-based preparations to clinical practice. In this review, we discuss the mechanisms of anti-atherosclerotic effects of garlic preparations, focusing on antihyperlipidemic, hypotensive, anti-platelet and direct anti-atherosclerotic activities of the medicinal plant. We also provide an overview of available meta-analyses and a number of clinical trials that assess the beneficial effects of garlic.

<https://www.sciencedirect.com/science/article/pii/S1875536419300883>

7. Zhao S et al. Cellular and Molecular Probing of Intact Human Organs. *Cell* 2020;



DOI:<https://doi.org/10.1016/j.cell.2020.01.030>. Optical tissue transparency permits scalable cellular and molecular investigation of complex tissues in 3D. Adult human organs are particularly challenging to render transparent because of the accumulation of dense and sturdy molecules in decades-aged tissues. To overcome these challenges, we developed SHANEL, a method based on a new tissue permeabilization approach to clear and label stiff human organs. We used SHANEL to render the intact adult human brain and kidney transparent and perform 3D histology with antibodies and

dyes in centimeters-depth. Thereby, we revealed structural details of the intact human eye, human thyroid, human kidney, and transgenic pig pancreas at the cellular resolution. Furthermore, we developed a deep learning pipeline to analyze millions of cells in cleared human brain tissues within hours with standard lab computers. Overall, SHANEL is a robust and unbiased technology to chart the cellular and molecular architecture of large intact mammalian organs.

[https://www.cell.com/cell/fulltext/S0092-8674\(20\)30111-2](https://www.cell.com/cell/fulltext/S0092-8674(20)30111-2)

This work has been highlighted by Amy Schleunes. Image of the Day: See-Through Tissue. *The Scientist* on Feb 21, 2020. Scientists have developed a new tissue-clearing protocol that has rendered a whole, intact human brain transparent for the first time, according to a study published on February 13 in *Cell*. When it comes to clearing complete organs at the cellular and molecular levels, adult human organs pose a challenge due to the stiffness of their aged tissues, the authors write in the paper. Using a special detergent that penetrates and clears centimeters-thick organs, the researchers were able to observe the structural details of the human brain, eye, thyroid, and

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kidney, as well as a transgenic pig pancreas. <https://www.the-scientist.com/image-of-the-day/image-of-the-day-see-through-tissue-67142?utm>

8. Colloca L and Barsky AJ. Placebo and Nocebo Effects. *N Engl J Med* 2020; 382:554-561. Placebo and nocebo effects (effects of patients' positive and negative expectations) are powerful and pervasive in clinical practice. Neurobiologic mechanisms, information offered about treatment, prior encounters with a drug or procedure, and the therapeutic milieu can all generate these effects... <https://www.nejm.org/doi/full/10.1056/NEJMra1907805?query=TOC>

Invitation from Future Meetings

1. The 8th GP-TCM RA Annual Meeting will be held in Vytautas Magnus University, Kaunas, Lithuania. The meeting was initially scheduled for 8th-9th July 2020. **In consideration of the impact of the COVID-19 epidemic to planning and travels, the GP-TCM RA is now considering to postpone this meeting to on 14-16 Oct. 2020.** As soon as the final decision is made, it will be announced throughout e-mailing list and in a future issue of Newsletter.

<http://www.gp-tcm.org/event/the-8th-annual-meeting-of-the-good-practice-in-traditional-chinese-medicine-research-association-gp-tcm-ra/>

<https://www.vdu.lt/en/vmu-will-host-the-annual-meeting-of-traditional-chinese-medicine/>

2. The First Annual Conference of Chinese Medicine Branch of Hubei Pharmacological Society will be held on 10th April 2020. The First Annual Conference of Chinese Medicine Branch of Hubei Pharmacological Society (CMHBPS) will be held in Wuhan, Hubei Province on April 10, 2020. Interested to attend? Please contact Prof Xuanbin Wang: 459560483@qq.com



3. The 20th International Congress of the International Society for Ethnopharmacology will be held in Capsis Hotel, Thessaloniki, Greece, 27th-29th April 2020.

www.ethnopharmacology2020.org

4. The 19th Meeting of Consortium for Globalization of Chinese Medicine (CGCM) is organized by Chengdu University of Traditional Chinese Medicine which will be held from **August 21 - 23, 2020 (Friday - Sunday)** in Chengdu. Details of the meeting will be announced shortly and please mark this event on your diary in advance. Should you have any enquiries, please feel free to contact: centraloffice@tcmedicine.org

5. Pyrrolizidine alkaloids: Genotoxic carcinogens of natural origin as contaminants in food and phytomedicine. A workshop to be held on Sept. 29-30, 2020 in Kaiserslautern, Germany.



SAVE THE DATE

Novel insights into pyrrolizidine alkaloid toxicity and implications for risk assessment



29 – 30 SEPTEMBER
KAISERSLAUTERN | 2020

TOPICS

Occurrence – Genotoxicity – Toxicokinetics – Risk assessment

Invited speakers (requested)

Ge Lin	Werner Knoess
Catherine Mahony	Jacob Van Klaveren
Stefan Pfuhrer	Alfonso Lampen
Ivonne Rietjens	Heidi Foth
Barbara Steinhoff	Anja These
Patrick Mulder	Jörg Fahrer
Ad Peijnenburg	Dieter Schrenk

Number of participants is limited

first contact: pa-workshop@chemie.uni-kl.de

sponsored by Kooperation Phytopharmaka

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6. **13th European Congress of Integrative Medicine announces 2020 will be held in London, UK, 11-13 September 2020.** The congress will be held at the prestigious Queen Elizabeth II Centre in London, the largest dedicated conference, events and exhibition space in central London. Located less than five minutes' walk from the Houses of Parliament, the venue is perfectly positioned to house delegates from across Europe and the rest of the world. The following video gives you a good taste of the prime location www.ecimcongress.com/video

Organised on behalf of The European Society for Integrative Medicine and in association with the National Centre for Integrative Medicine (NCIM), The College of Medicine, the University of Southampton and the Academy of Integrative Health & Medicine (AIHM). Featuring world-class experts presenting the latest research and success stories in clinical care, alongside poster sessions and an international exhibition, the congress aims to bring together medical practitioners, healthcare professionals, scientists, researchers, therapists and healthcare politicians from across the globe. All interested parties are invited to register their interest via the website www.ecimcongress.com or by emailing the organisers at info@ecimcongress.com. For more information, please visit: www.ecimcongress.com

Invitation from Journals

1. WJTCM Call for papers: Herbal Medicine Analysis and Quality Standards. Qualitative and quantitative determination of the effective components together with other workable approaches in traditional Chinese medicines and other herbal medicines is the reasonable and effective comprehensive quality control method, which is the fundamental basis for their quality standard setting and thereby to guarantee the clinical efficacy and safety of herbal medicines at large. Topics include but not limited to :

- Phytochemical analysis of complex herbal mixtures.
- Development of state of the art analytical methods.
- Tactics for herbal quality standard elaboration.
- Metabolic analysis of herbal drugs and herbal finished products.
- Application of new quality control technology and methods in herbal industry.

<https://mp.weixin.qq.com/s/awvwwqGGmpm09zcrHRRg7Q>

To submit to WJTCM, please visit: <http://www.wjtcn.net/submitarticle.asp>



2. WJTCM Call for papers: Pharmacology and Toxicology of Herbal Medicine. The special issue on Pharmacology and Toxicology of Herbal Medicine focuses on the biological effects and mechanisms of herbal medicine. It has a broad scope, covering basic research to clinical studies regarding pharmacology and toxicology. We cordially invite researchers and experts to contribute original research articles as well as reviews on pharmacology and toxicology of herbal medicine. Potential topics include but are not limited to:

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

Potential topics include but are not limited to:

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

To submit to WJTCM, please visit: <http://www.wjtcn.net/submitarticle.asp>



3. An invitation and update from WJTCM. WJTCM is cited by Scopus, DOAJ, Scimago Journal Ranking, CNKI, Wanfang Data, Google Scholar, EBSCO Publishing's Electronic

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Databases, Exlibris-Primo Central, Hinari, Infotrieve, ProQuest and TdNets, and has been a core S&T journal of China since 2018.

A report on the progress made in 2019 at WJTCM can be found here:

https://mp.weixin.qq.com/s/5JnW9redKT_knRfK4ALELg (中文)

The 4th issue of volume 5, 2019 has now been published. All WJTCM articles are published online in WJTCM website: <http://www.wjtcn.net/currentissue.asp?sabs=n>

Sixteen WJTCM publications of clinical importance:

Papers	Webpage
1. New Insights into the Molecular Basis of Kidney Governing Bone Theory. Zhao DF, et al. <i>WJTCM</i> 2015;3:40-46.	http://www.wjtcn.org/ch/reader/view_abstract.aspx?file_no=20150011&flag=1
2. Herbal Medicines for Acute Kidney Injury: Evidence, Gaps and Frontiers. Bunel V, et al. <i>WJTCM</i> 2015;3:47-66.	http://www.wjtcn.org/ch/reader/view_abstract.aspx?file_no=20150019&flag=1
3. Interventional Effect of Jianpi Bushen Granule Combined with Western Medicine on the Level of Serum Acetylcholine Receptor Antibodies in Myasthenia Gravis Patients. Jiang C, et al. <i>WJTCM</i> 2015;4:42-47.	http://www.wjtcn.org/ch/reader/view_abstract.aspx?file_no=20150012&flag=1
4. Progress of Research on Organ Fibrosis with TCM. Wang QL, et al. <i>WJTCM</i> 2016;2:53-59.	http://www.wjtcn.org/ch/reader/view_abstract.aspx?file_no=20150038&flag=1
5. Tonifying Shen-Yin and-Yang principles in treating osteoporosis: All roads lead to Rome. Gou W, et al. <i>WJTCM</i> 2016;4:38-48.	http://www.wjtcn.org/ch/reader/view_abstract.aspx?file_no=20160031&flag=1
6. Evaluation of the Pharmacokinetics and Renal Excretion of Ma-Zi-Ren-Wan in Health Subjects. Hu DD, et al. <i>WJTCM</i> 2017;2:08-15.	http://www.wjtcn.org/ch/reader/view_abstract.aspx?file_no=20160050&flag=1
7. The Protective Effect of Gan Shen Fu Fang on Liver Endothelial Cells in Common Bile Duct-ligated Rats. Du QH, et al. <i>WJTCM</i> 2017;4:21-25.	http://www.wjtcn.net/article.asp?issn=2311-8571;year=2017;volume=3;issue=4;spage=21;epage=25;aulast=Du
8. Compound-Target-Pathway Network Analysis and Effective Mechanisms Prediction of Bu-Shen-Jian-Pi Formula. Li XY, et al. <i>WJTCM</i> 2018;4:170-175.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2018;volume=4;issue=4;spage=170;epage=175;aulast=Li
9. TCM Based on Zheng Differentiation versus Angiotensin Receptor Blocker / Angiotensin-converting Enzyme Antagonist in Efficacy of Treating Diabetic Kidney Disease: A Meta-analysis of Randomized Clinical Trials. Huang WJ, et al. <i>WJTCM</i> 2019;1:18-28.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2019;volume=5;issue=1;spage=18;epage=28;aulast=Huang
10. Disease-based toxicology on safety assessment strategy and application for herbal and traditional medicines. Wang JB, Shi Z, Xiao XH. <i>WJTCM</i> 2019;3:139-144.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2019;volume=5;issue=3;spage=139;epage=144;aulast=Wang
11. Discussions on toxic traditional Chinese medicine and new perspectives. Liu H, Zhou W, Gao Y. <i>WJTCM</i> 2019;3:145-150.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2019;volume=5;issue=3;spage=145;epage=150;aulast=Liu
12. Taming the fire of nephrotoxic botanicals. Holden F, et al. <i>WJTCM</i> 2019;3:151-163.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2019;volume=5;issue=3;spage=151;epage=163;aulast=Holden
13. Screening and identifying hepatotoxic components in Polygoni multiflori Radix and Polygoni multiflori Radix Praeparata. Zhang GP, et al. <i>WJTCM</i> 2019;3:164-170.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2019;volume=5;issue=3;spage=173;epage=179;aulast=Zhang
14. Advances in the safety evaluation of mineral medicines - Cinnabar and realgar. Tian J, et al. <i>WJTCM</i> 2019;3:171-179.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2019;volume=5;issue=3;spage=164;epage=172;aulast=Tian
15. Meta-analysis of niaoducing granules combined with RAAS system blocker in the treatment of diabetic nephropathy. Zhang J, et al. <i>WJTCM</i> 2019;5:193-201.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2019;volume=5;issue=4;spage=193;epage=201;aulast=Zhang
16. Tonifying kidney, lung, and spleen combined with Western medicine for stable chronic obstructive pulmonary disease: A systematic review. Liu YY, Gao Z. <i>WJTCM</i> 2019;5:202-13.	http://www.wjtcn.net/showcaptcha.asp?RedirectUrl=article&issn=2311-8571;year=2019;volume=5;issue=4;spage=202;epage=213;aulast=Liu

AND the ultimate feature..., advised by Prof Zhongzhen Zhao, an Editorial Board member of our Newsletter, we have decided to highlight a couple of medicinal plants used in TCM in a new column, starting from October 2019. It will feature beautiful photos of the plants by Prof Hubiao Chen, an English introduction to the plants and its medicinal use in TCM by Prof Ping Guo, as well as Chinese poems on the plants by Prof Jiqing Liu.

Please read on. The last page will be the best as yet to come...

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Monthly Chinese Materia Medica Highlights

Wrinkly skinned chaenomeles (*Chaenomeles speciosa*, Rosaceae, 皱皮木瓜, left) and papaya (*Carica papaya*, Caricaceae, 番木瓜, right)



Native to China, wrinkly skinned chaenomeles is mainly cultivated for medicinal purposes. Its dried nearly ripe fruit is a classic Chinese medicinal that dispels wind-dampness, soothes the tendons, harmonizes the stomach, and improves digestion. Circulated in herbal markets nationwide, superior medicinal materials are produced in Anhui, Hubei and Zhejiang provinces. Wrinkly skinned chaenomeles has been serving as a key ingredient in some renowned ancient and modern Chinese medicinal formulations.

Native to tropical America, papaya is mainly cultivated in the tropical and sub-tropical areas as a source of edible and delicious fruits. However, either fresh or dried papaya fruit is also used medicinally in certain regions. According to local experiences, papaya improves digestion, promotes lactation, eliminates dampness, unblocks collaterals, resolves toxicity, and expels parasites. In this regard, papaya can be defined as a folk Chinese medicinal.

皱皮木瓜

蔷薇落叶猩红花
活络祛风镇痛佳
若是君来携琼璐
桃李为报与木瓜

番木瓜

番木叶阔茎为端
小乔乳黄色花冠
本是祛风兼利水
为何总在远云间

The above photographs, texts and poems are contributed by Prof **Hubiao Chen** (Hong Kong), Dr **Ping Guo** (Hong Kong) and Prof **Jiqing Liu** (Shenzhen), respectively. We thank Prof **Zhongzhen Zhao** (Hong Kong) for advising this column and thank Dr **Qihe Xu** (London) for help with editing.