



Synopsis

講座摘要

Systemic Investigation of Quality Research in Chinese Medicine

中藥質量系統研究的探索

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The safety and efficacy of Chinese Medicine rely on its quality, which is the key to the modernisation, industrialisation, and internationalisation of TCM. In 2010, the Ministry of Science and Technology (China) approved the first state key laboratory in TCM, the State Key Laboratory of Quality Research in Chinese Medicine (SKL-QRCM, University of Macau) in Macau. The SKL-QRCM has focused on quality studies of Chinese Medicine, and established a series of world-class research centers for systemic quality study of Chinese medicine, including Center for Efficacy, Center for Safety, Center for Stability, Center for Controllability and Center for Chinese Medical Information.

Efficacy Research: with a focus on the active ingredients (material foundation of Chinese medicine), action mechanisms and molecular pathways, we search for quality markers of Chinese medicine, as the key for quality control, and we explore the development of modern Chinese medicine products.

Safety Research: with a focus on the quantitative analysis of endogenous toxins, as well as exogenous toxins including pesticides, heavy metals, arsenic salts and biotoxins in Chinese medicine, we integrate multidisciplinary cutting-edge approaches and have innovated several breakthrough technologies and methods.

Stability Research: with a focus on new formulation innovation, new engineering technologies and new biomaterials, we revolutionise traditional formulations of Chinese medicine and pharmaceutical engineering technologies, to tackle the challenges of stability and standardisation of Chinese medicine.

Controllability Research: with a focus on innovative evaluation methods and advanced analytical technologies, we establish international quality standards for Chinese medicine. We have recently completed compilation of several Chinese medicine quality standards for EMEA*, US Pharmacopoeia, and Chinese Pharmacopoeia.

Chinese Medicine Information Research: with a strategic focus on the big data of Chinese medicine information, quality assurance and traceability systems, as well as systemic research on classical formulas of Chinese medicine, we study international registration of and international markets expansion for Chinese medicine.

With the efforts from all these centres, we have established six disciplines ranked as the global ESI Top 1% disciplines; have been recognised by the National Science and Technology Award, Macau Science and Technology Special Award, and Macau Education Merit Medal; we have nurtured more than 620 PhD and MSc graduates as high-calibre international talents, and have published more than 2,100 SCI papers including those in *Nature*, *Science*, and *Cell* series journals and other reputable journals. In addition, a series of innovative Chinese medicine products developed by our institute have recently been recognised by Geneva International Invention Gold Award. Therefore, we have provided an innovative platform and outstanding talents for the development of Chinese medicine technology industry in Macau. President Xi Jinping inspected our innovative science and technology achievements in Chinese medicine at University of Macau in 2014, and inspected Peking University - UM Innovation Research Institute for Chinese Medicine in Hengqin (Zhuhai) in 2018.

* Europe, the Middle East and Africa



中藥質量是關乎中醫藥臨床用藥安全和有效的核心，也是制約中醫藥現代化、產業化和國際化的關鍵。2010年國家科技部批准了第一個中醫藥國家重點實驗室「中藥質量研究國家重點實驗室」在澳門成立。國家重點實驗室聚焦中藥質量研究，建成一系列有效、安全、穩定、可控和信息等國際一流的中藥系統研究中心。

中藥有效研究：重點針對常用道地中藥的藥效物質基礎、作用原理和作用途徑研究，尋求質量標誌物發現作為質量檢測關鍵指標，探索現代中藥開發。

中藥安全研究：重點針對中藥自身內源性毒物的限量分析，外源性農藥、重金屬、砷鹽、生物毒素等有害物質分析和檢測，集成多學科前沿技術方法突破。

中藥穩定研究：通過解決中藥的新劑型、新工藝，利用新型生物材料，改變中藥傳統劑型和製藥工程關鍵技術，從而解決中藥製造的穩定性和規範性。

中藥可控研究：重點解決中藥質量創新性評價方法和先進檢測技術，致力建立國際性中藥質量標準。完成歐盟、美國和中國藥典等國際性質量標準製訂。

中藥信息研究：針對中醫藥信息大數據，質量保障和追溯系統研究，中醫經典方劑和配方製劑的系統研究，創新藥的國際註冊和國際市場拓展。

研究中心建立了藥理毒理、化學、臨床醫學等6個ESI全球1%優勢學科，獲國家科技獎、澳門科技特別獎、澳門教育功績勳章，培養620多位博碩士國際化高端人才，發表在《自然》、《科學》和《細胞》等著名學術期刊的SCI論文2,100多篇；團隊研發的創新中藥系列產品獲得日內瓦國際發明金獎，為澳門中醫藥科技產業發展提供創新平臺和優異人才。習近平主席曾於2014年及2018年分別視察澳大的中醫藥科技成果及珠海橫琴的北大—澳大中醫藥創新研究院。