



香港浸會大學
HONG KONG BAPTIST UNIVERSITY



School of 中醫藥學院
Chinese Medicine



張安德中醫藥國際貢獻獎
CHEUNG ON TAK
INTERNATIONAL AWARD
FOR OUTSTANDING CONTRIBUTION
TO CHINESE MEDICINE

The Third Cheung On Tak International Award for Outstanding Contribution to Chinese Medicine Award Ceremony-cum-Award Winners' Lectures

第三屆張安德中醫藥國際貢獻獎 頒獎典禮暨得獎學人講座



Friday, 8 April 2016, from 3:30 p.m. to 6:00 p.m.

Tsang Chan Sik Yue Auditorium, Academic and Administration Building

Baptist University Road Campus, Hong Kong Baptist University

2016 年 4 月 8 日 (星期五) 下午 3 時 30 分至 6 時

香港浸會大學 浸會大學道校園

教學及行政大樓二樓 曾陳式如會堂

Cheung On Tak International Award for Outstanding Contribution to Chinese Medicine

張安德中醫藥國際貢獻獎

With its rapid development in different parts of the world, traditional Chinese medicine is playing an increasingly important role in the healthcare systems in many countries. Against this backdrop, the School of Chinese Medicine of the Hong Kong Baptist University established the Cheung On Tak International Award for Outstanding Contribution to Chinese Medicine in 2011. The objectives of the Award are to recognise scientists and scholars with groundbreaking and internationally recognised achievements in advancing the internationalisation of Chinese medicine or Chinese medicine research, and to promote the internationalisation and modernisation of Chinese medicine for the benefit of the global community.

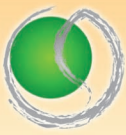
Established with a generous donation from the Cheung On Tak Charity Foundation, the Award is named after Mr. Cheung On Tak.

The Award is conferred biennially on one to two scholars and carries a total monetary prize of HK\$500,000.

傳統中醫藥在世界各地急起發展，在多個國家的醫療保健制度中所扮演的角色日趨重要。香港浸會大學中醫藥學院自2011年起設立中醫藥國際貢獻獎，目的是借著表揚在推動中醫藥國際化或在中醫藥研究領域取得具突破性及獲國際認可的成就的科學家和學者，促進中醫藥的現代化和國際化，同時亦推動中醫藥的發展，惠澤全球。

承蒙張安德慈善基金慷慨捐獻，香港浸會大學中醫藥學院得以設立此獎項，特以「張安德中醫藥國際貢獻獎」命名，以彰善舉。

「張安德中醫藥國際貢獻獎」每兩年頒發一次，每屆頒發獎項予一至兩位學者，獎金總額為港幣五十萬元。



Cheung On Tak Charity Foundation

張安德慈善基金



The Cheung On Tak Charity Foundation was set up by renowned industrialist Mr. Cheung On Tak in 1992 to advance the development of education, religion and medical services. Formerly consultant of Man Po Investment Company Limited and On Tak Enterprise Company Limited, Mr. Cheung is well-known for his philanthropy and commitment to serving the community. He has an impressive record of services in trade and industrial as well as community organizations, such as President and Chairman of The Chiu Chau Plastic Manufacturers Association Company Limited, Director of the Hong Kong Chiu Chow Chamber of Commerce, Honorary President of the Aberdeen Kai-fong Welfare Association Social Service Centre, Chairman of the Southern District Anti-drug Campaign and President of the Hong Kong Cheung Shi Clansmen's Association. In 2011, he was conferred Honorary University Fellowship by Hong Kong Baptist University.

Over the years, the Foundation has contributed generously towards the cause of education, and has made substantial donations to a number of universities in Hong Kong to support their development.

「張安德慈善基金」由張安德榮譽院士於1992年創辦，宗旨為促進教育、宗教及醫療服務的發展，扶危解困，回饋社會，造福社群。張院士是著名工業家，曾任萬寶置業有限公司及安德企業有限公司顧問，一向熱心公益，致力履行社會責任，曾在多個工商及社區團體擔任職務，包括潮僑塑膠廠商會會長和主席、香港潮州商會會董、香港仔街坊福利會社會服務中心榮譽會長、南區反吸毒運動委員會主席、香港張氏宗親會會長等。2011年獲香港浸會大學頒授榮譽大學院士銜。

「張安德慈善基金」自成立以來慷慨捐資，熱心支持本港的教育事業，曾先後捐資多間大學，積極推動本地高等教育的發展。

Panel of Adjudicators of the Third Award

第三屆評審委員會

Chairman

主席

Professor Chen Kaixian

- Academician, Chinese Academy of Sciences
- Tenured Professor, Shanghai University of Traditional Chinese Medicine
- Chair Professor, Shanghai Institute of Materia Medica, Chinese Academy of Sciences



陳凱先院士

- 中國科學院院士
- 上海中醫藥大學終身教授
- 中國科學院上海藥物研究所研究員

Members

成員

Professor Chen Keji

- Academician, Chinese Academy of Sciences
- Award Winner of the First Cheung On Tak International Award for Outstanding Contribution to Chinese Medicine



陳可冀院士

- 中國科學院院士
- 第一屆「張安德中醫藥國際貢獻獎」得獎人

Professor Roland Chin Tai-hong

- President and Vice-Chancellor, Hong Kong Baptist University



錢大康教授

- 香港浸會大學校長

Professor Leung Ping-chung, SBS, OBE, JP

- Director, Centre for Clinical Trials on Chinese Medicine, Institute of Chinese Medicine, The Chinese University of Hong Kong
- Director, State Key Laboratory of Phytochemistry and Plant Resources in West China (Partner Laboratory in The Chinese University of Hong Kong)



梁秉中教授, SBS, OBE, JP

- 香港中文大學中醫中藥研究所臨床研究中心主任
- 植物化學與西部植物資源持續利用國家重點實驗室夥伴實驗室主任

Professor Lu Aiping

- Dean, School of Chinese Medicine and Dr. Kennedy Y.H. Wong Endowed Chair of Chinese Medicine, Hong Kong Baptist University



呂愛平教授

- 香港浸會大學中醫藥學院院長、黃英豪博士中醫藥講座教授

Professor So Kwok-fai

- Academician, Chinese Academy of Sciences
- Chair Professor, Department of Ophthalmology, The University of Hong Kong



蘇國輝院士

- 中國科學院院士
- 香港大學醫學院眼科學系講座教授

Dr. Kennedy Wong Ying-ho, BBS, JP

- Managing Partner, Philip K.H. Wong, Kennedy Y.H. Wong & Co.
- Chairman, Advisory Committee of School of Chinese Medicine, Hong Kong Baptist University



黃英豪博士, BBS, JP

- 黃乾亨黃英豪律師事務所首席合夥人
- 香港浸會大學中醫藥學院諮詢委員會主席

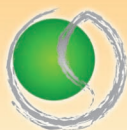
Professor Kenneth Wu Kun-yu

- Academician, Academia Sinica
- Chair Professor, China Medical University
- Chair Professor, College of Life Science, National Tsing Hua University
- Distinguished Chair Professor, College of Medicine, National Taiwan University



伍焜玉院士

- 中央研究院院士
- 中國醫藥大學講座教授
- 國立清華大學生命科學院講座教授
- 國立台灣大學醫學院講座教授



Winner of the Third Cheung On Tak International Award for Outstanding Contribution to Chinese Medicine

第三屆張安德中醫藥國際貢獻獎得獎學人



Academician Kuo-Hsiung Lee 李國雄院士

- Academician of Academia Sinica
中央研究院院士
- Kenan Distinguished Professor of Medicinal Chemistry and
Director of Natural Products Research Laboratories,
Eshelman School of Pharmacy, University of North Carolina at Chapel Hill
美國北卡大學藥學院
Kenan 醫藥化學傑出講座教授暨天然藥物研究所所長

Academician Kuo-Hsiung Lee received his B.S. in pharmacy from Kaohsiung Medical University, Taiwan in 1961, his M.S. in pharmaceutical chemistry from Kyoto University, Japan in 1965, and his Ph.D. in medicinal chemistry from University of Minnesota, Minneapolis in 1968. He also held the position of a postdoctoral scholar in organic chemistry at University of California, Los Angeles (UCLA) from 1968 to 1970.

Since 1970, Academician Lee has been a faculty member at the Eshelman School of Pharmacy, University of North Carolina at Chapel Hill (UNC-CH), first as Assistant Professor (1970-74), then as Associate Professor (1974-76), followed by Full Professor (1977-91), and finally as Kenan Distinguished Professor of Medicinal Chemistry, Endowed Chair (1992-present). He also served as Chairman of the Medicinal Chemistry and Natural Products Division from 1998 to 1999. He established the Natural Products Research Laboratories (NPRL) in 1983 and has been serving as its Director until now.

Throughout his research career, Academician Lee has focused on using medicinal chemistry-based methods to investigate Chinese herbal medicines with the aim of discovering and developing new drug candidates and new drugs. This work has made him a world-recognized leader in medicinal and natural products chemistry. With continuing grant support from National Institutes of Health (NIH) and other sources since 1971, his NPRL has studied over 190 Chinese herbal medicines and discovered several thousand novel bioactive natural products and their synthetic analogs, providing leads for new generation drug design against AIDS, cancer, and other diseases. His discoveries will undoubtedly lead to development of future pharmaceutical agents in the same manner that numerous previously discovered bioactive natural products (including ephedrine, taxol, and artemisinin) were developed as current pharmaceutical agents to treat cancers and other diseases. Using the most advanced natural products and synthetic medicinal chemistry coupled with cutting-edge life science technologies, including new computational techniques and new target-based and genomic evaluation methods, the novel lead compounds newly discovered by Academician Lee's research group will provide a solid foundation for developing potential chemotherapeutic drug candidates in the 21st century.

Academician Lee has over 45 years of experience in teaching in the pharmacy profession at graduate levels. In the Division of Medicinal Chemistry and Natural Products (now known as Chemical Biology and Medicinal Chemistry), he has been the graduate advisor of 38 Ph.D. and 7 M.S. graduate students. These students have gone on to gain prestigious appointments in both academia and industry. Academician Lee has also supervised over 190 postdoctoral fellows and visiting scientists. Totally each year, he supervises approximately 20-30 scientists, including graduate students, postdoctoral fellows, visiting scientists and professors.

Academician Lee also coordinates collaborative research projects with more than 60 active scientists/laboratories outside of UNC-CH, which gives his graduate and postgraduate students unique opportunities to interact with experts in numerous biological/mechanistic areas of medicinal and natural product chemistries, in addition to a strong foundation in synthetic medicinal chemistry as well as drug discovery and development that is the major focus of the NPRL.

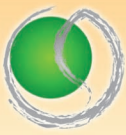
Academician Lee's productive, internationally known research has resulted in more than 838 research articles and over 113 patents. He has given over 417 invited lectures and presentations, both in and outside of the US. He has also served as an editorial advisory board member of 28 journals, appointed as Chairman of Committee for the Promotion of Chinese Herbal Medicine Industry and Technology, Ministry of Economic Affairs of Taiwan (2000-2006) as well as Member of the Tang Prize in Biopharmaceutical Science Selection Committee of Academia Sinica (2013-2016).

Among Academician Lee's numerous awards and honors are the Lifu Academic Award for Chinese Medicine in 1994; election as Academician of Academia Sinica in 1996; the Outstanding Achievement Award, University of Minnesota in 1999; the Taiwanese-American Foundation Achievement Award in Science and Engineering in 2003; the Kitasato Microbial Chemistry Medal, Japan in 2005; the American Society of Pharmacognosy Norman R. Farnsworth Research Achievement Award in 2009; the Order of the Rising Sun, Gold Rays with Neck Ribbon from the government of Japan in 2011; the China 100 Distinguished Chinese Alumni Award, University of Minnesota in 2014; and the Ernest H. Volwiler Research Achievement Award, American Association of Colleges of Pharmacy in 2015. Academician Lee was elected as Fellow of the American Association of Pharmaceutical Scientists (1986), Fellow of the American Association for the Advancement of Science (1994), and Fellow of the American Society of Pharmacognosy (2010). He was also appointed as Honorary Professor, Shanghai Institute of Materia Medica, Chinese Academy of Sciences (1996); Honorary Advisor, Chinese Medicinal Material Research Centre, The Chinese University of Hong Kong (1999); Honorary Professor, Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences (1999); as well as Chair Professor and Honorary Director of the Chinese Medicine Research and Development Center at China Medical University and Hospital, Taiwan (2010); and Chair Professor, College of Pharmacy at Kaohsiung Medical University, Taiwan (2011).

Academician Lee feels that medicinal chemistry is an art of combining chemistry and biology for drug discovery and development, and like the Chinese concept of *Yin* and *Yang*, Chemistry and Biology are complementary. The discovery of new bioactive compounds from Chinese herbal medicine depends on valid biological assays and targets, while new chemistry can make the discovery of new biological targets possible. Accordingly, he feels that research on Chinese herbal medicine is one of the most effective and efficient methods to discover new drugs.

李國雄院士是臺灣高雄醫學大學藥學院首屆畢業生(1961)，日本京都大學藥物化學碩士(1965)，美國明尼蘇達大學醫藥化學哲學博士(1968)，加州大學－洛杉磯有機化學博士後研究學者(1968-1970)。自1970年起他任職於美國北卡大學－教堂山藥學院，先後擔任助理教授(1970-1974)、副教授(1974-1977)、教授(1977-1991)和Kenan醫藥化學傑出講座教授(1992-迄今)。他於1998至1999年期間擔任藥學院醫藥化學及天然產物學系的系主任，並在1983年建立天然產物研究所，一直擔任該所所長迄今。

李院士在整個學術生涯中，一直專注於利用醫藥化學的方法從事中草藥新藥研發的工作。他持續而深入的研究使他取得了豐碩的成果，在該研究領域成為國際高度認可的專家。從1971



年以來，他從不間斷地獲得美國國家衛生研究院(NIH)之研究資助，使他從190餘種中草藥中發現了數千種有效成分及其合成衍生物或類似物，為開發新一代治療癌症和愛滋病或其它疾病的藥物提供新線索。李院士及其團隊所研發之幾種化合物已進入癌症和愛滋病之臨床應用、臨床試驗或臨床前研發階段。李院士堅持以中草藥為資源，結合天然產物與醫藥化學及尖端生命科學科技所開發出之大量新穎先導物質，無疑地將為21世紀更多新藥之研發奠定了最堅實之基礎。

李院士在北卡大學藥學院為本科生和研究生講授醫藥化學、天然產物化學及相關課程長達45年之久，指導和培養了38位博士研究生和7位碩士研究生，這些學生畢業後在學術界和工業界都獲得了非常優異的成就與表現。在李院士之研究所從事過研究的博士後學者和訪問學者已超過190人。在他的指導下，其研究所裏每年從事研究的人員約有20至30人，包括研究生、博士後、訪問學者和訪問教授。李院士與北卡大學以外的全球60多位科學家和研究室皆有合作項目，這為他的研究生和博士後研究人員提供了與不同領域專家直接接觸的獨特機會。

李院士以高效和豐富的國際合作而著稱，已發表了838篇學術論文，獲得了113項專利，應邀國際學術報告和演講417次，為28種學術期刊的編輯顧問，擔任台灣經濟部中草藥技術委員會委員兼召集人(2000-2005)以及中央研究院唐獎生技醫藥評選委員(2013-2016)。他在科學研究的傑出貢獻與榮譽，使其榮獲許多獎項，包括1994年之第一屆「立夫中醫藥學術獎」、1996年當選為中華民國第21屆中央研究院院士、1999年「明州大學傑出成就獎」、2003年「臺美基金會科技工程人才成就獎」、2005年「日本北里微生物化學獎」、2009年「美國生藥學會Norman R. Farnsworth傑出研究成就獎」、2011年榮獲日本政府頒發之「旭日中綬章」勳章、2014年「明州大學百年百位傑出華人校友獎」、2015年「美國藥學院協會Ernest H. Volwiler傑出研究成就獎」，並獲選美國藥學科學家協會會士(1986)、美國科學振興協會會士(1994)及美國生藥學會會士(2010)，以及獲任命為中國科學院上海藥物研究所榮譽教授(1996)、香港中文大學中藥研究中心榮譽顧問(1999)、中國醫學科學院北京藥用植物開發研究所榮譽教授(1999)、中國醫藥大學講座教授暨中醫藥研發中心榮譽主任(2010)及高雄醫學大學藥學院講座教授(2011)。

李院士認為醫藥化學是依化學和生物學之完美結合以開創新藥的一種藝術，就好像中國的「陰陽」學說，化學和生物學相互為輔。從中草藥中發現新的活性成分要依賴對生物標靶之精準測試，而化學可以使新生物標靶的發現成為可能。因此，他認為研發中草藥是現代開創新藥最有效之捷徑之一。

Winner of the Third Cheung On Tak International Award for Outstanding Contribution to Chinese Medicine

第三屆張安德中醫藥國際貢獻獎得獎學人



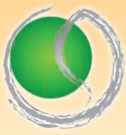
Professor De-an Guo 果德安教授

- Chair Professor of Shanghai Institute of Materia Medica, Chinese Academy of Sciences
中國科學院上海藥物研究所研究員
- Director of National Engineering Laboratory for TCM Standardization Technology
中藥標準化技術國家工程實驗室主任
- Director of Shanghai Research Center for Modernization of Traditional Chinese Medicine
上海中藥現代化研究中心主任

Professor De-an Guo was born in Yuncheng County, Shandong Province of China on April 24, 1962. He received his Ph.D. in Pharmacognosy from Beijing Medical University in 1990 and was Post-doctoral Fellow at Plant Biochemistry, Department of Chemistry and Biochemistry, Texas Tech University, USA from 1993 to 1996. He was Associate Professor at School of Pharmaceutical Sciences, Beijing Medical University (1996-1997) and then Full Professor at School of Pharmaceutical Sciences, Peking University (1997-2005). He is currently Chair Professor at Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Director of National Engineering Laboratory for TCM Standardization Technology and Director of Shanghai Research Center for Modernization of Traditional Chinese Medicine.

Professor Guo has focused his research on modernization of traditional Chinese medicine (TCM) for more than 30 years. He has established a method to analyse the active ingredients of TCM and developed a standard system for holistic quality control of TCM, which have been adopted as standards of the Chinese Pharmacopoeia, United States Pharmacopoeia and Europe Pharmacopoeia. These remarkable achievements were considered to have a great global impact and widely recognized through the numerous awards and prizes conferred on him over the years. He won the Third Prize of the Fourth Wu Jieping Medical Research Award and the Paul-Janssen Pharmaceutical Research Award in 1997, and the National Science Fund for Distinguished Young Scholars awarded by the National Natural Science Foundation of China (NSFC) in 1999. He was awarded the Natural Science Award (First Class) by the Ministry of Education of China in 2005 and 2007. In 2012, he received the State National Science Award (Second Class), Outstanding Contribution Award of the 11th Oxford International Conference on the Science of Botanicals as well as American Botanical Council Norman R. Farnsworth Excellence in Botanical Research Award. He received the Wu Jieping Medical Innovation Award in 2013 and the Science and Technology Award (First Class) of the China Association of Chinese Medicine in 2015.

Professor Guo is the first Chinese scientist to introduce TCM standards into the United States Pharmacopoeia and European Pharmacopoeia and has chaired many major scientific research projects at the national level. He published over 350 SCI papers with 5,900 SCI citations. He has 14 authorized patents and compiled 12 books or book chapters. His concurrent academic positions include, among others, President of Good Practice in Traditional Chinese Medicine (GP-TCM) Research Association, Executive Committee member of Chinese Pharmacopoeia, Director of Committee for Natural Medicines, Vice Chair of Botanical Dietary Supplement and Herbal Medicine Expert Committee of United States Pharmacopoeia, Member of European Pharmacopoeia, Chairman of The Specialty



Committee of TCM Pharmaceutical Analysis of World Federation of Chinese Medicine Societies (WFCMS), Expert of Panel of Society for Medicinal Plant Research (GA), Expert of Panel of the American Botanical Council (ABC), Member of Drug Evaluation Committee of State Food and Drug Administration (SFDA). He currently serves as Editor-in-Chief, Associate Editor or Editorial Board members of 18 highly respected international scientific journals, including *World Journal of Traditional Chinese Medicine*, *Journal of Ethnopharmacology*, *Planta Medica*, and *Fitoterapia*, etc. He has delivered more than 40 plenary lectures in major international conferences. He initiated and organized the "Shanghai International Conference on Traditional Chinese Medicine and Nature Medicine" meeting series, which has successfully been held 8 times and becomes a well-known international event. He also held six consecutive meetings of the "International Conference on TCM Pharmaceutical Analysis" as its President.

果德安教授，男，1962年4月出生於山東鄆城，1990年取得北京醫科大學藥學院博士學位，1993至1996年在美國德州理工大學化學系從事博士後研究，1996至2005年分別擔任北京醫科大學藥學院副教授及北京大學藥學院教授。現任中國科學院上海藥物研究所研究員、中藥標準化技術國家工程實驗室主任、上海中藥現代化研究中心主任。

果教授從事中藥現代研究至今30餘年，在中藥質量標準相關基礎和應用研究以及推動中藥國際化方面作出顯著成績，建立了中藥複雜體系活性成分系統分析方法，構建了中藥整體質量控制標準體系，應用於國家藥典和國際藥典標準中。他的科研成就屢獲肯定，1997年獲第四屆「吳階平醫學研究獎—保羅·楊森藥學研究獎」生藥學專業三等獎；1999年獲國家傑出青年基金；2005年和2007年分獲教育部自然科學一等獎；2012年獲國家自然科學獎二等獎，是中醫藥領域第一個國家自然科學獎，同年獲第11屆「國際植物藥科學大會(美國)首屆傑出貢獻獎」、美國植物藥委員會最高榮譽「Norman R. Farnsworth卓越研究獎」；2013年獲「吳階平醫藥創新獎」；2015年獲「中華中醫藥學會科學技術一等獎」。

果教授是第一個將中藥標準引入美國藥典和歐洲藥典的中國學者，並先後主持多個國家級重要科研專案，共發表SCI論文350餘篇，被SCI引用5,900餘次，獲授權發明專利14項，主編專著12部。他在多個國際、國內學術組織中任職，包括國際中醫藥規範研究學會會長、中國藥典執行委員、天然藥物專委會主任、美國藥典會植物膳食劑與草藥專家委員會副主席、歐洲藥典委員、世界中醫藥聯合會中藥分析專委會會長、國際藥用植物研究學會顧問專家、美國植物學委員會顧問專家(亞洲唯一專家)、國家藥品監督管理局藥品審評委員等；擔任包括《World Journal of Traditional Chinese Medicine》、《Journal of Ethnopharmacology》、《Planta Medica》、《Fitoterapia》在內的18個傳統藥物或植物藥領域國際學術雜誌的主編、副主編或編委；並在國際學術會議上作大會報告40餘次，發起並主辦系列國際會議—「上海中醫藥國際大會」和「中藥分析國際學術會議」，為中藥現代化和國際化做出了突出貢獻。

Proceedings 程序

Award Ceremony 頒獎典禮

Opening Address 開幕辭

Professor Lu Aiping
Dean, School of Chinese Medicine, Hong Kong Baptist University
香港浸會大學中醫藥學院院長 呂愛平教授

Presentation Speech 介紹得獎學人

Professor Chen Kaixian
Chairman, Panel of Adjudicators
評審委員會主席 陳凱先院士

Presentation of Awards 頒發獎項

Mr. Cheung On Tak
Founder, Cheung On Tak Charity Foundation and
Honorary Fellow, Hong Kong Baptist University
張安德慈善基金創辦人、香港浸會大學榮譽院士 張安德先生

Mr. Cheng Yan Kee, BBS, JP
Chairman, the Council and the Court, Hong Kong Baptist University
香港浸會大學校董會暨諮議會主席 鄭恩基先生, BBS, JP

Award Winners' Addresses 得獎學人致辭

Academician Kuo-Hsiung Lee Professor De-an Guo
李國雄院士 果德安教授

Presentation of Mementos 致送紀念品

Professor Roland T. Chin
President and Vice-Chancellor, Hong Kong Baptist University
香港浸會大學校長 錢大康教授

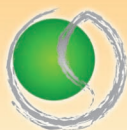
Award Winners' Lectures 得獎學人講座

Chinese Herbal Medicine and New Drug Discovery and Development

中草藥與新藥研創
Academician Kuo-Hsiung Lee
李國雄院士

Elaboration of Holistic TCM Quality Standards and Its Applications

中藥整體質量標準體系構建及其應用
Professor De-an Guo
果德安教授



Synopsis

講座摘要

Chinese Herbal Medicine and New Drug Discovery and Development 中草藥與新藥研創

Academician Kuo-Hsiung Lee
李國雄院士

Chinese herbal medicine (CHM) has been used by generations of Chinese ancestors for thousands of years. This enduring practice clearly demonstrates that CHM could serve as a unique, fundamental basis for modern drug discovery and development, especially when combined with advanced scientific technology.

The methods for discovering standardized world-class new drugs from CHM will be discussed. Internationalization of CHM should first emphasize quality control, not only the Chinese Materia Medica, but also the final purified products, either as a single component or multiple-component formulas, including partially purified products. Academician Kuo-Hsiung Lee participated in the 5-year program (2000-2005) of the Ministry of Economic Affairs of Taiwan, and the technology platform and related technology developed under the program which foster the growth of modern CHM industry will be illustrated.

Since 1971, Academician Lee has been engaged in a systematic investigation of CHM by combining the fields of natural products and synthetic medicinal chemistry with cutting-edge life science technologies for producing new drugs, mostly for treating cancer and AIDS. Through this efficient and effective approach, several thousands of promising novel bioactive natural products and synthetic compounds from more than 190 CHMs have been discovered, and these will be invaluable as unique leads and templates for future drug design and development, in the same manner that numerous previously discovered bioactive natural products (including ephedrine, indirubin, and artemisinin) were developed as current pharmaceutical agents to treat cancers and other diseases.

Academician Lee will focus on several examples that are in clinical uses, clinical trials, and preclinical development. A derivative of **CHM-2133-P**, related to flavonoids from *Wikstroemia indica* (Liao Ge Wang), is in Phase I clinical trials against cancers in the USA in 2015. **XL101** is a more promising analog of **GL-331**, which succeeded in Phase I clinical trial against colon and small-cell lung cancers and is derived from podophyllotoxin found in *Podophyllum emodi* (Gui Jiu). **JC-9 (ASC-9)**, a modified curcumin from *Curcuma longa* (Jiang Huang), is a clinical trial candidate for prostate and other cancers as well as succeeded in a Phase II clinical trial against acne. New analogs of **neo-tanshinlactone**, isolated from *Salvia miltiorrhiza* (Danshen), are anti-breast cancer clinical trials candidates. Novel **PBT** analogs, based on tylophorine from *Tylophora* species, may offer a novel treatment for lung cancer. **PG-2**, from *Astragalus membranaceus* (Huang Qi), based on Academician Lee's initial advice and developed by Pharmagenesis and PhytoHealth of Taiwan, was approved in Taiwan for treating cancer-related fatigue. **Bevirimat**, derived from betulinic acid found in *Syzigium claviflorum* (Pang Hua Chih Nan), is the first HIV "maturation inhibitor" and succeeded in a Phase II clinical trial for treating AIDS. Preclinical studies on many other novel promising natural product-based leads are in progress. These include the antiviral khellactone structural analogs (**DCK**) of the natural coumarin suksdorfins from *Lomatium suksdorfii* as well as certain structurally related pyranochromone analogs (**DCP**) that have also shown good activity against both non-drug-resistant and drug-resistant HIV strains. Finally, in the most recent exciting anti-HIV studies by Academician Lee, the daphnane

diterpenoid **gnidimacrin (GM)** has demonstrated the unique ability to eliminate latent HIV-1 from viral reservoirs in an *ex vivo* model. Thus, **GM** merits further development as a clinical trial candidate for latent HIV-1 eradication.

Finally, Academician Lee feels confident that the internationalization of Chinese medicine should hold bright promise to effectively produce new useful drugs. The products above, as well as other promising leads discovered from Chinese herbal medicine by his group and others, will definitely play an extremely important role and will certainly for generations to come serve as unique templates for future drug design and modification to yield new, safe and effective medicines to benefit the health of mankind.

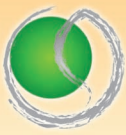
中國人的祖先使用中草药醫病已有數千年之歷史，這些累積之人體使用實證經驗顯示中草药可為現代新藥之研創提供一些最為獨特之寶貴資訊，特別是將其與先進之科技做有效的結合。

今天的演講將討論從中草药開發世界級新藥的方法。中草药的國際化首應加強品質管控，這包括單一之中藥及其純化產品。例如單一成分或多成分的複方，也包括部分純化產品。經由李國雄院士之參與，台灣經濟部之「中草药產業技術發展計劃」(2000-2005)所建立的技術平臺和相關技術也將在此予以說明。

自1971年起，李院士一直從事中草药的系統研究。他有效地結合了天然產物與醫藥化學及尖端之生命科學科技，以開創新藥；經此有效途徑，他已從190餘種之中草药中，發現了數千種具有生物活性的天然產物及其合成衍生物或類似物，為研創新藥提供了獨特的新先導物和新穎分子結構，特別是在癌症和愛滋病之新藥研發上取得了豐碩之成果。此些成果他日皆可望將其成功開發為如同ephedrine、indirubin或青蒿素等天然產物那樣用以治療癌症或其它疾病之新藥。

李院士的演講將着重於數個包括臨床應用、臨床試驗和臨床前研究中之實例。例如(1)由了哥王(*Wikstroemia indica*)所取得之類黃酮類合成類似物CHM-2133-P之衍生物，已於2015年在美國進行抗癌之一期臨床試驗；(2)由鬼臼(*Podophyllum emodi*)毒素podophyllotoxin之合成類似物GL-331，成功地完成對大腸癌及小細胞肺癌之一期臨床試驗，其新衍生物XL-101顯示比GL-331更具抗癌優勢；(3)由薑黃(*Curcuma longa*)所得之薑黃素衍生物JC-9(ASC-9)已成功完成了治癒瘰癧的二期臨床試驗，JC-9還是治療前列腺癌和其它癌症之臨床候選藥；(4)由丹參(*Salvia miltiorrhiza*)所得之neo-tanshinlactone是治療乳腺癌之臨床候選藥物；(5)由娃兒藤植物(*Tylophora species*)所得之tylophorine類似物PBT可望用於肺癌之治療；(6)經由李院士之最初建議而由美國之Pharmagenesis及臺灣之PhytoHealth製藥公司研發成功之PG-2係黃耆(*Astragalus membranaceus*)之多醣，在2011年經臺灣之衛福部批准用於治療癌因性疲憊症；(7)由棒花赤楠取得之betulinic acid衍生物Bevirimat是第一個被發現的愛滋病毒成熟抑制劑，成功於愛滋病的二期臨床試驗(Phase IIa)；(8)由*Lomatium suksdorfii*所得之香豆素suksdorfins之衍生物DCK及其類似物DCP皆對愛滋病毒有極強之抑制活性，尤其有良好的抗耐藥性；(9)最近剛發現的二萜類天然產物Gnidimacrin(GM)更有消除HIV-1潛伏病毒的獨特功能，可望成為清除體內潛伏HIV病毒的臨床測試候選藥物。

最後，李院士相信利用中草药以研創新藥將為中草药之國際化帶來光明的願景。如上所舉諸例以及他的研發團隊從中草药中所開發出之大量新穎先導物質，肯定會對未來的新藥設計和研發起到十分重要的功用，沿此研發思路和途徑一定會產生更多有效且安全之新藥，以造福人類之健康。



Synopsis

講座摘要

Elaboration of Holistic TCM Quality Standards and Its Applications 中藥整體質量標準體系構建及其應用

Professor De-an Guo
果德安教授

Traditional Chinese medicine (TCM) has over 3,000 years of history to treat diseases in China and has played a pivotal role in the Chinese healthcare system. As a complex system involving multi-components, the conventional quality control mode based on one single marker fails to completely control the quality of TCM due to unclear active principles and lack of systematic analytical methods, and has become a bottleneck hindering the healthy development of TCM industry and TCM globalization. The Chinese government has been emphasizing the research and elaboration of TCM quality monographs and brought “TCM Standardization and Modernization” into the key strategic task of the new period to promote the development of TCM globalization. Based on the research goal of “TCM standards leading international standard-setting”, we have proposed “scientificity and practicability” as the basic principle, and “comprehensive research and simplified standard” as the guiding thought to construct the TCM quality standard which is in accordance with the complex feature of TCM. TCM quality research can be divided into two stages: basic research and establishment of quality standards. We will first develop the methodology to analyse the complex TCM system in a systemic manner, and the methodology would regulate the formulation of scientific TCM standards; we will then put forward the proposals and core factors for the formulation of scientific and practical TCM quality standards, and the core factors include the preparation of reference standards, fingerprinting, multiple marker assay, etc. The abovementioned research has resulted in a holistic model for TCM quality standard which has been successfully applied in the Chinese Pharmacopoeia, United States Pharmacopoeia and Europe Pharmacopoeia for the TCM standards.

中醫藥在中國治病救人已有三千多年的歷史，在中國的醫療衛生體系中起到了關鍵作用。中藥為多成分複雜體系，由於活性成分不清，缺乏系統分析方法，過去採用的單一成分質量控制模式無法真正控制中藥的質量，成為制約中藥產業健康發展和中藥走向國際的瓶頸。國家重視中藥質量標準的研究與制定，將推進「中藥標準化和現代化」納入了新時期的重點戰略任務，從而推動中藥國際化發展。基於中藥標準「引領國際」的研究目標，我們提出了科學與實用為基本原則，「深入研究，淺出標準」為指導思想，符合中醫藥特點的中藥整體質量控制標準體系構建理念。中藥標準體系構建主要包括基礎研究與標準建立兩部分工作，首先建立了制約質量標準制定的中藥複雜體系系統分析方法，然後對如何制定科學實用的整體質量控制標準，提出了相關建議和核心要素，包括對照物質、對照圖譜、多指標成分定量等。建立的中藥現代質量控制標準模式成功用於中國藥典、美國藥典和歐洲藥典標準中。

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