



香港浸會大學  
HONG KONG BAPTIST UNIVERSITY

School of **中醫藥學院**  
**Chinese Medicine**

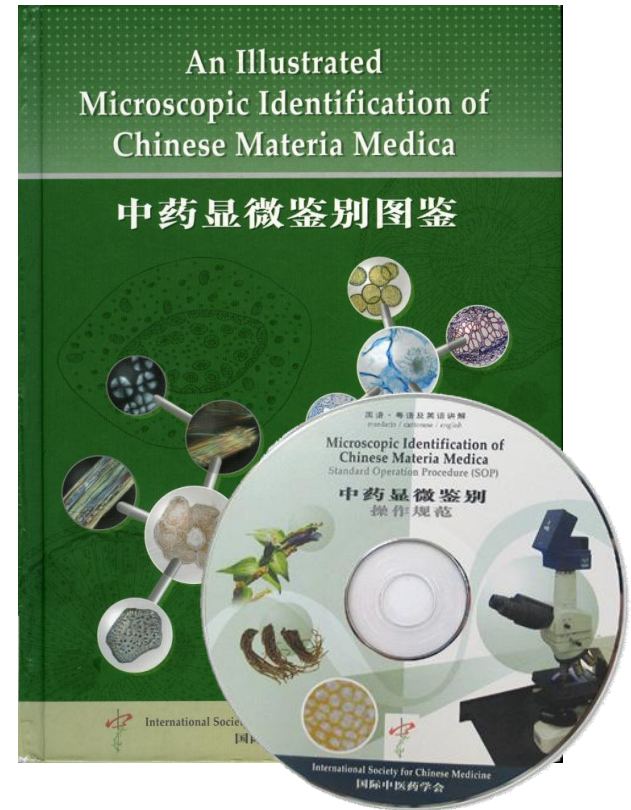
# 中醫藥學院 技術平台及技術服務

呂愛平教授  
中醫藥學院院長  
2012年6月22日

# 中醫藥學院之 科研及技術平台

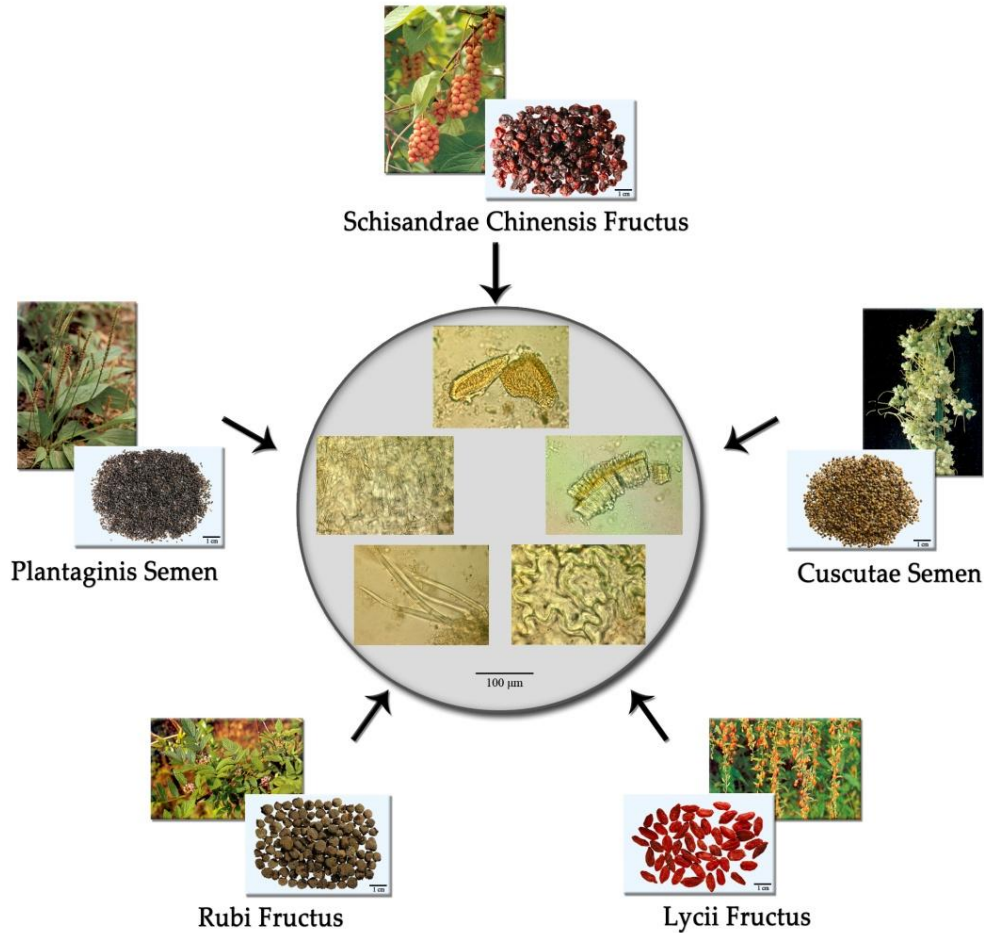
# 中藥認證

## 1) 顯微鑒別 (Standard Operating Procedure of Microscopic Identification)



中藥顯微鑒別圖鑒（雙語）介紹鑒別中草藥及中成藥的常用方法  
An Illustrated Microscopic Identification of CMM (bilingual) introduces the general practice of microscopic identification of **Chinese medicinal materials** and **proprietary TCM products**

# 以顯微鑒定方法檢測中成藥產品 (Microscopic Identification of Proprietary TCM Products)



MICROSCOPY RESEARCH AND TECHNIQUE 67:305–311 (2005)

## Application of Microscopy in Authentication of Chinese Patent Medicine—Bo Ying Compound

ZHONG-ZHEN ZHAO,<sup>1\*</sup> YA-NI HU,<sup>1,2</sup> YUK-WO WONG,<sup>1</sup> WAN-CHI GIGI WONG,<sup>1</sup> KIM WU,<sup>3</sup> ZHI-HONG JIANG,<sup>1</sup> AND TINGGUO KANG<sup>2</sup>

<sup>1</sup>School of Chinese Medicine, Hong Kong Baptist University, Kowloon Tong, Hong Kong

<sup>2</sup>Liao Ning College of Traditional Chinese Medicine, China

<sup>3</sup>Eu Yan Sang Limited Manufactures, Hong Kong

**KEY WORDS** microscopic identification; Chinese Materia Medica; Bo Ying compound; micro-morphological features; micrograph



# 偏光及螢光之顯微鑒別 (Polarized and Fluorescence Microscopy)

MICROSCOPY RESEARCH AND TECHNIQUE 69:927–932 (2006)

MICROSCOPY RESEARCH AND TECHNIQUE 69:277–282 (2006)

## Application of Microscopic Techniques in Authentication of Herbal Tea—Ku-Ding-Cha

CHUN-FUNG TAM,<sup>1</sup> YONG PENG,<sup>1,2</sup> ZHI-TAO LIANG,<sup>1</sup> ZHEN-DAN HE,<sup>3</sup> AND ZHONG-ZHEN ZHAO<sup>1\*</sup>

<sup>1</sup>School of Chinese Medicine, Hong Kong Baptist University, Kowloon Tong, Hong Kong

<sup>2</sup>Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Beijing, People's Republic of China

<sup>3</sup>CHD Biotechnology (Shenzhen) Limited, Shenzhen, People's Republic of China

**KEY WORDS** microscopic techniques; authentication; herbal tea; Ku-Ding-Cha

## Distinguishing the Medicinal Herb *Oldenlandia diffusa* From Similar Species of the Same Genus Using Fluorescence Microscopy

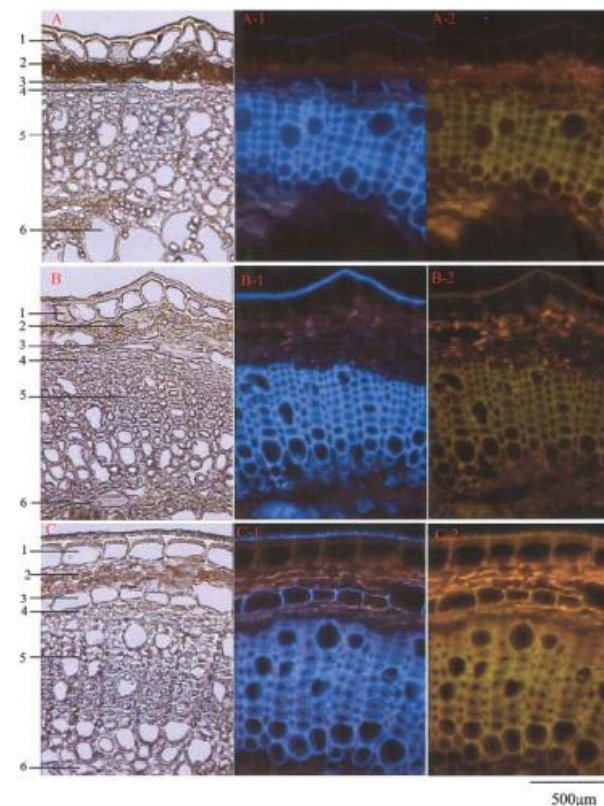
ZHI-TAO LIANG, ZHI-HONG JIANG, KELVIN-SZE-YIN LEUNG, YONG PENG, AND ZHONG-ZHEN ZHAO\*

School of Chinese Medicine, Hong Kong Baptist University, Kowloon Tong, Hong Kong

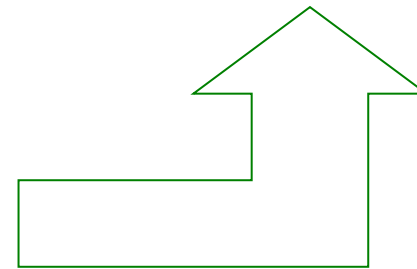
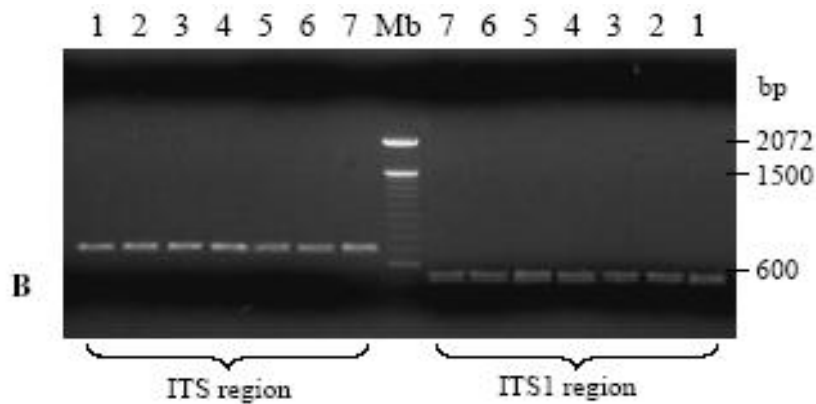
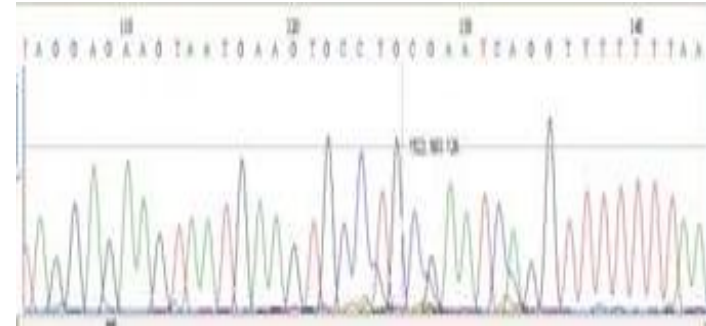
**KEY WORDS** fluorescence microscope; microscopic characteristics; *Oldenlandia diffusa* (Willd.) Roxb.; Chinese Materia Medica

TABLE 1. The microscopic characteristics of leaf transverse sections (Sketch) and powder of five standard original plants

| Five Standard Original Plants |  |                  |                    |        |
|-------------------------------|--|------------------|--------------------|--------|
| No.                           | Latin Name   | Location         | Transverse section | Powder |
| A                             | <i>Ilex kudingcha</i> C. J. Tseng                  | Guangxi, China   |                    |        |
| B                             | <i>Clerodendrum fortuneanum</i> L.                 | Hong Kong, China |                    |        |
| C                             | <i>Ehretia thyrsoiflora</i> (Sieb. et Zucc.) Nakai | Guangxi, China   |                    |        |
| D                             | <i>Ilex latifolia</i> Thunb.                       | Guangxi, China   |                    |        |
| E                             | <i>Ligustrum robustum</i> (Roxb.) Bl.              | Yunnan, China    |                    |        |



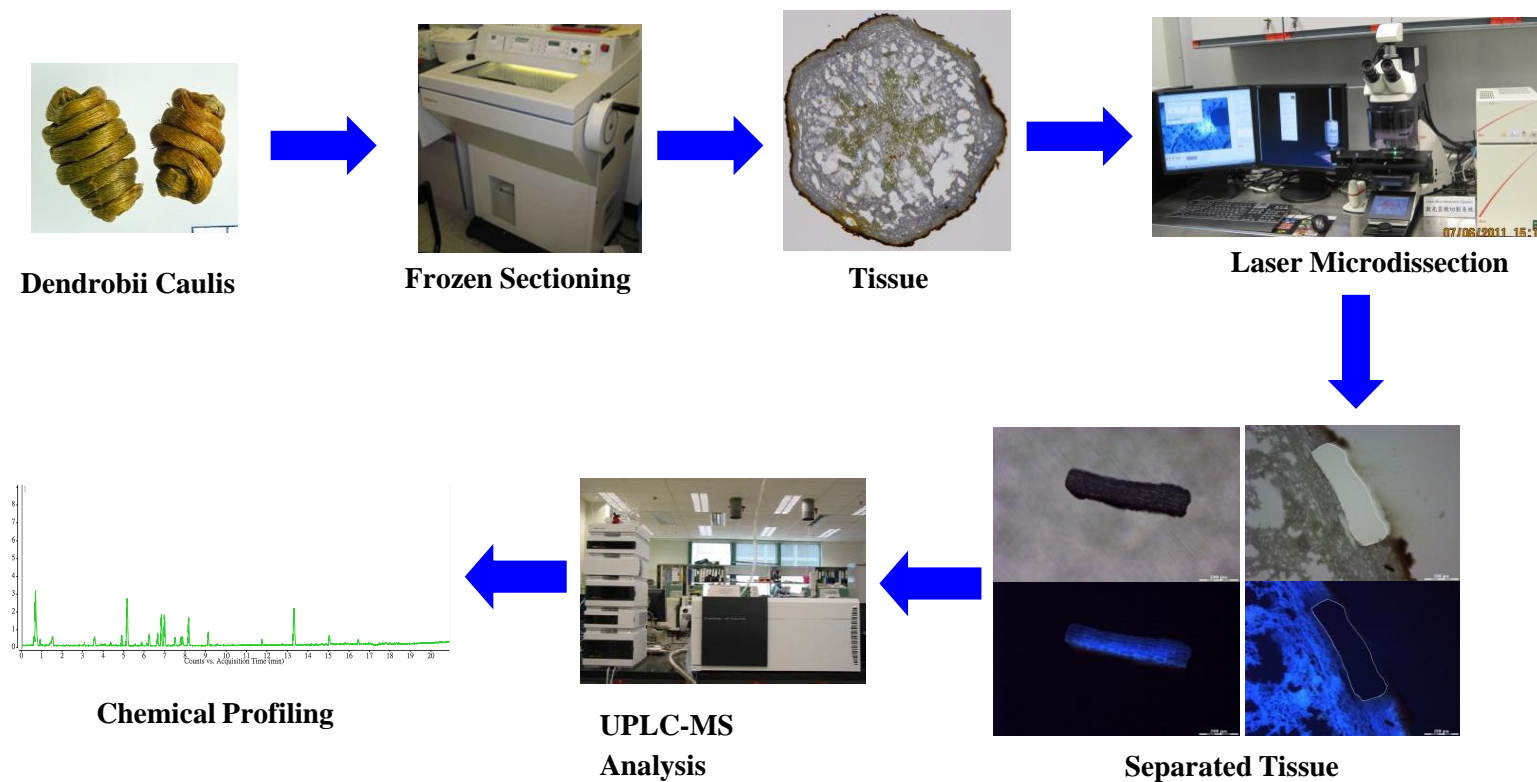
## 2) 分子生物性之中藥認證 (Molecular Biological Identification)



*The method is more suitable for extremely valuable and rare CMMs*

### 3) 鐳射顯微切割和液質聯用技術

國家自然科學基金資助——應用鐳射顯微切割和液質聯用技術進行中藥  
項目批准號：81173495 組織化學研究



# 開拓新的鑒定技術

*Anal. Chem.* 2007, 79, 2745–2755

SCI impact factor 2007: **5.287**, ranked the **2<sup>nd</sup>** out of 70 journals (2.8%) in the category of Chemistry, Analytical

## **In Vivo Analysis and Spatial Profiling of Phytochemicals in Herbal Tissue by Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry**

**Kwan-Ming Ng,<sup>\*,†,‡</sup> Zhitao Liang,<sup>§</sup> Wei Lu,<sup>†</sup> Ho-Wai Tang,<sup>‡</sup> Zhongzhen Zhao,<sup>§</sup> Chi-Ming Che,<sup>†</sup> and Yung-Chi Cheng<sup>||</sup>**

*Department of Chemistry and Open Laboratory of Chemical Biology of the Institute of Molecular Technology for Drug Discovery and Synthesis, and Molecular Chinese Medicine Laboratory, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong, School of Chinese Medicine, The Baptist University of Hong Kong, Hong Kong, and Department of Pharmacology, Yale University School of Medicine, New Haven, Connecticut*

**中國專利：CN101196491**



# 標準化 (Standardization)

- ▶ 藥典
- ▶ 港標
- ▶ 道地性 (ISO TC249)

# 中藥研發

Source Materials



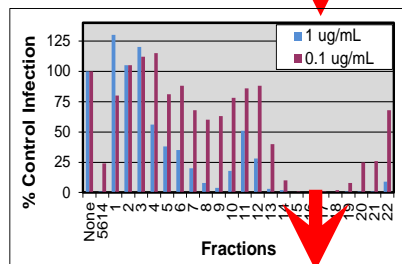
Initial Screening

Against different disease targets  
such as cancer and HIV

Recollection of Active Plant Material



Bioassay-directed  
separation



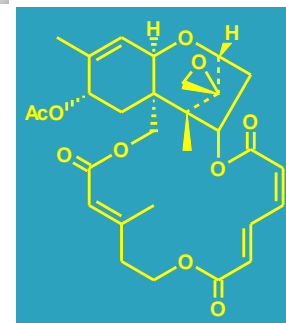
Active Compounds



Structure  
Determination



Bioassay Tests  
Mechanism Study



Antimalarial activity  
CC<sub>50</sub>: 94.5 ng/ml  
IC<sub>50</sub>(D6): 0.56 ng/ml  
IC<sub>50</sub>(W2): 0.72 ng/ml

# 藥物遞送系統的研究開發

核酸(SiRNA)遞送系統可否下調 CKIP-1 促進骨形成、治療骨質疏鬆？

篩選抑制CKIP-1表達的核酸(siRNA)

炮彈



建立成骨細胞靶向性核酸遞送系統

導航系統



動物體內功能評價對骨質疏鬆的治療效果

# SiRNA遞送系統對骨質疏鬆的治療

TECHNICAL REPORTS

nature  
medicine

## A delivery system targeting bone formation surfaces to facilitate RNAi-based anabolic therapy

Metabolic skeletal disorders associated with impaired bone formation are a major clinical challenge. One approach to treat these defects is to silence bone-formation-inhibitory genes by small interference RNAs (siRNAs) in osteogenic-lineage cells that occupy the niche surrounding the bone-formation surfaces. We developed a targeting system involving dioleoyl trimethylammonium propane (DOTAP)-based cationic liposomes attached to six repetitive sequences of aspartate, serine, serine ((AspSerSer)<sub>6</sub>) for delivering siRNAs specifically to bone-formation surfaces. Using this system, we encapsulated an osteogenic siRNA that targets casein kinase-2 interacting protein-1 (encoded by *Plekho1*, also known as *Plekho1*). *In vivo* systemic delivery of *Plekho1* siRNA in rats using our system resulted in the selective enrichment of the siRNAs in osteogenic cells and the subsequent depletion of *Plekho1*. A bioimaging analysis further showed that this approach markedly promoted bone formation, enhanced the bone micro-architecture and increased the bone mass in both healthy and osteoporotic rats. These results indicate (AspSerSer)<sub>6</sub>-liposome as a promising targeted delivery system for RNA interference-based bone anabolic therapy.

– Nature Medicine. 18, 307–314 (2012).



## 內科、針灸、骨傷治療



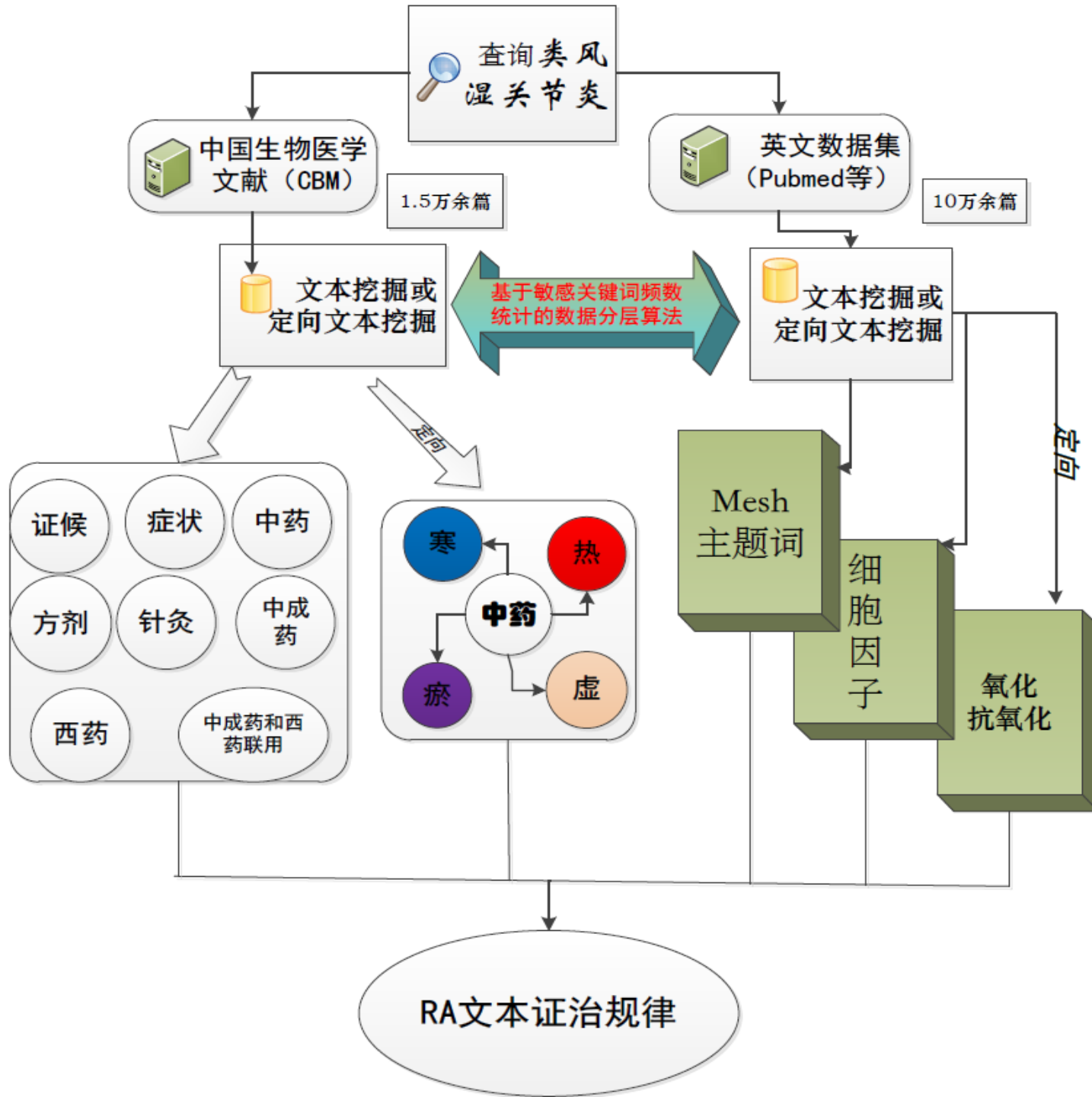
- ▶ 除提供內科診症外，亦設有針灸、骨傷推拿治療
- ▶ 重點治療疾病包括：

|    |                                |
|----|--------------------------------|
| 內科 | 消化系統疾病、心腦血管疾病、腫瘤               |
| 針灸 | 肺系疾病、兒科疾病、中風後遺症、痛症             |
| 骨傷 | 頸椎病、腰椎間盤突出、盆骨錯位、<br>髕骨軟化症、脊椎側彎 |

# 標準和規範

- ▶ 臨床實踐指南：中藥複方和針灸
- ▶ 臨床試驗規範：中醫證候診斷
- ▶ 門診服務標準
- ▶ 疾病證候分類標準

# 文本挖掘平台

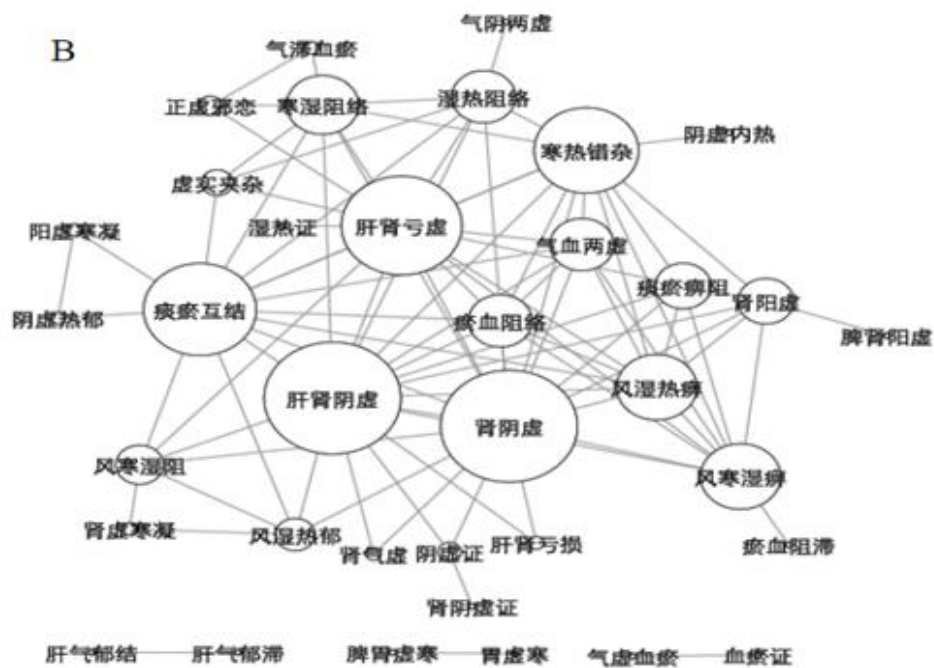


A



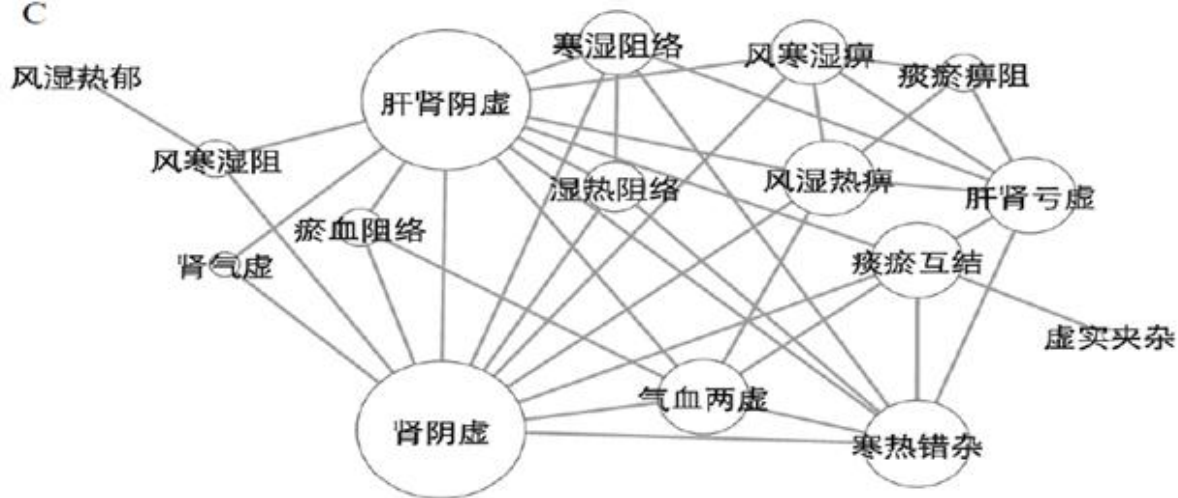
RA文本挖掘中医证候网络图

B



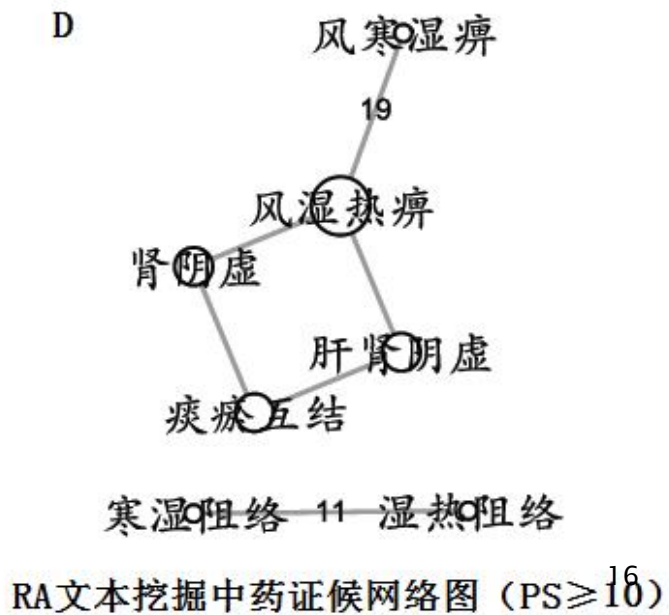
RA文本挖掘中医证候网络图 (PS ≥ 2)

C



RA文本挖掘中医证候网络图 (PS ≥ 4)

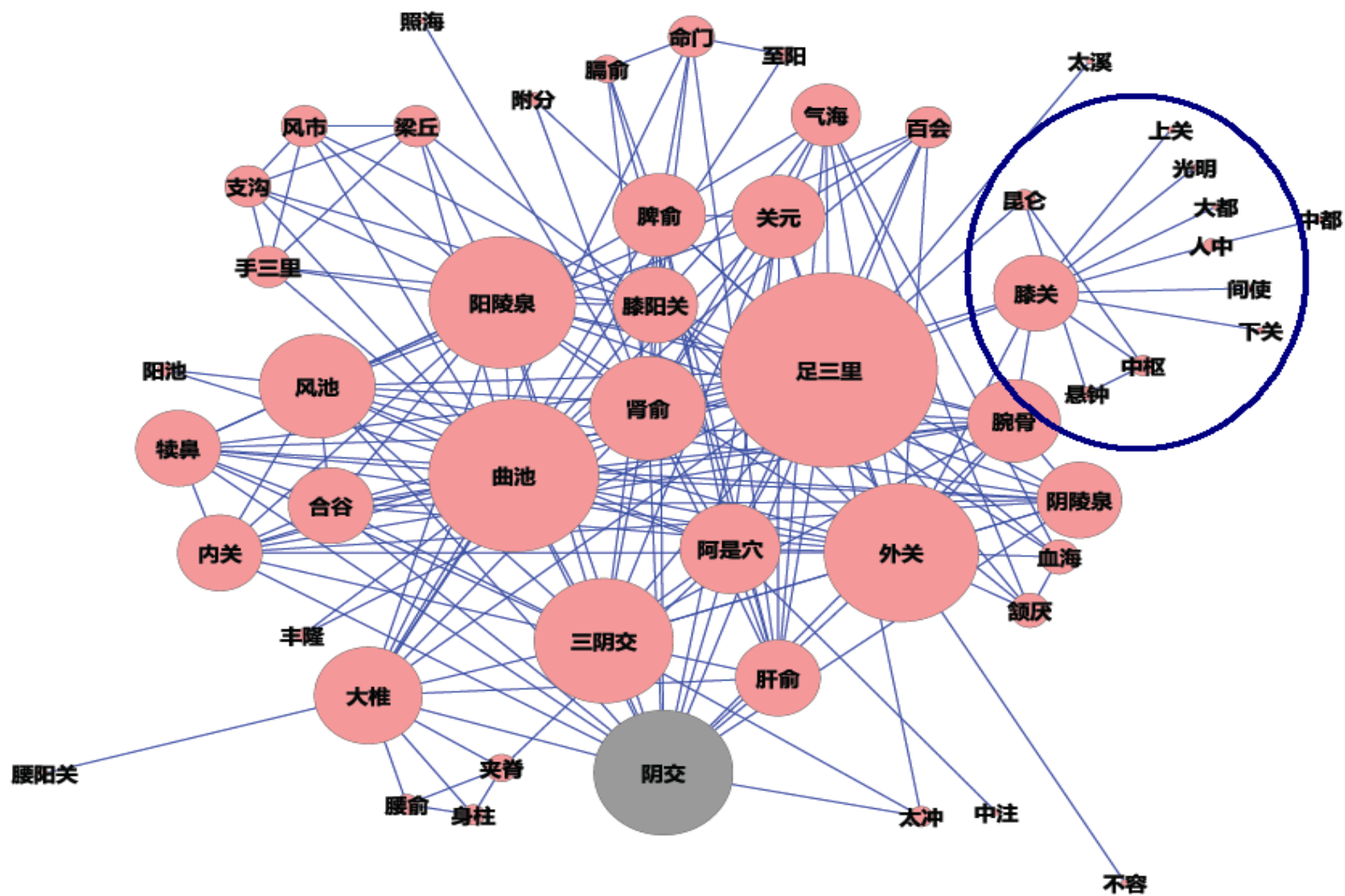
D



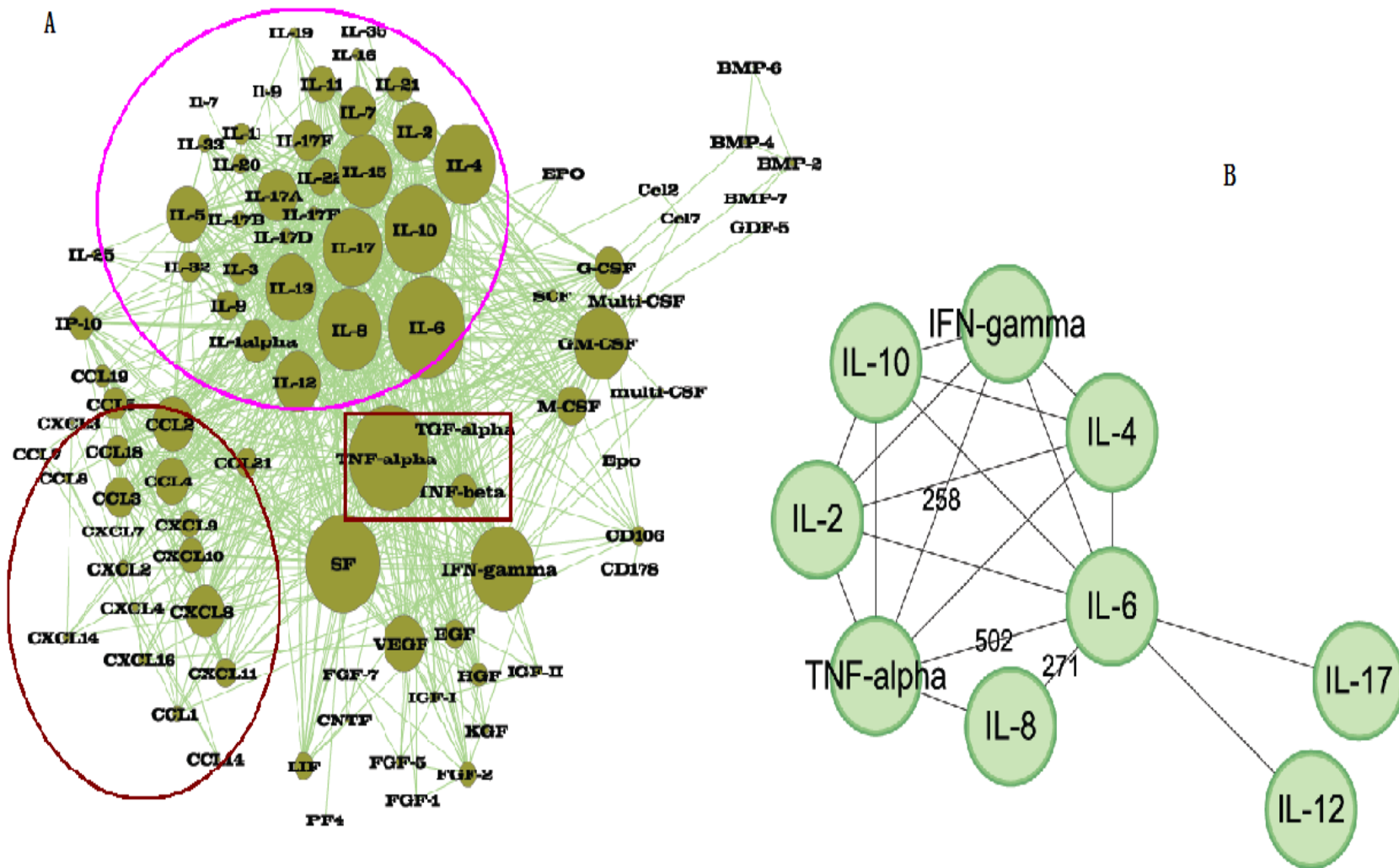
RA文本挖掘中药证候网络图 (PS ≥ 16)



# RA文本挖掘針灸穴位網絡圖



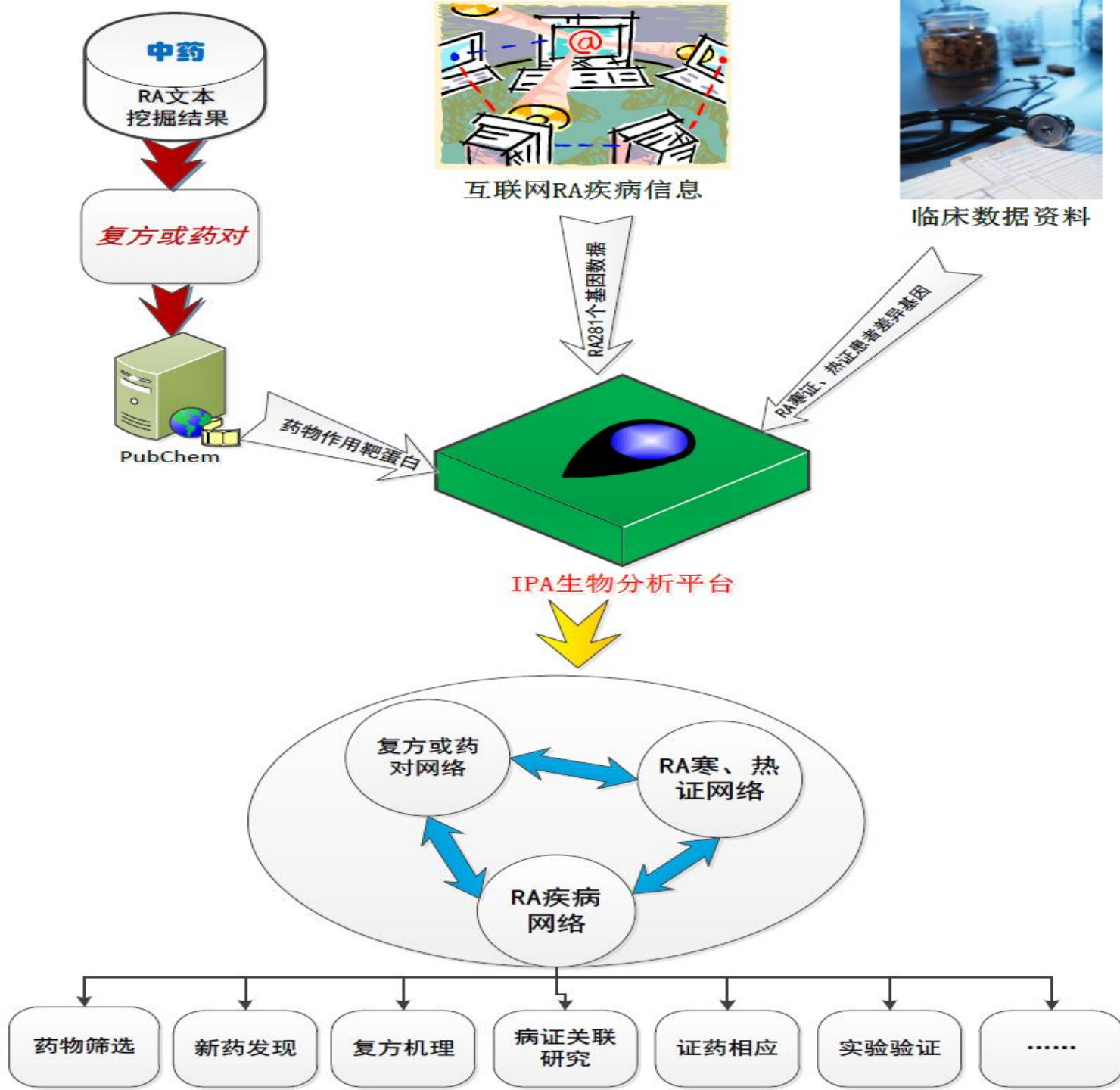
# RA文本挖掘細胞因子結果

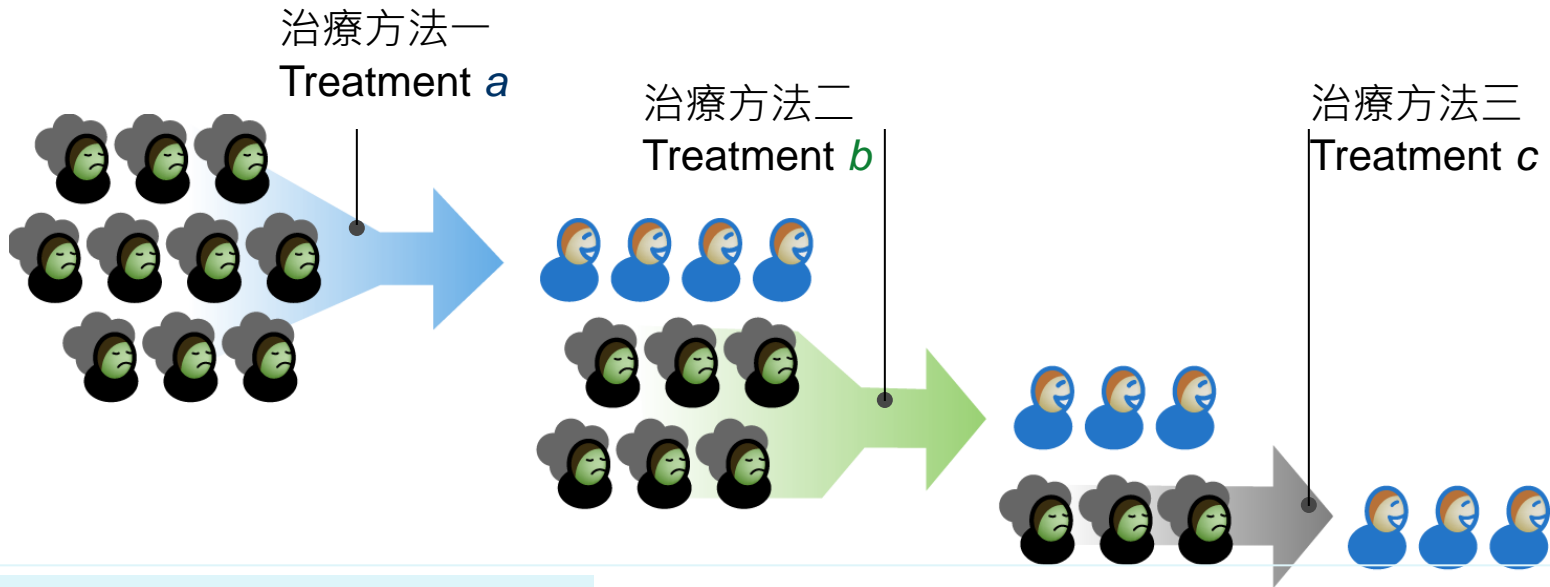


RA文本挖掘细胞因子网络图

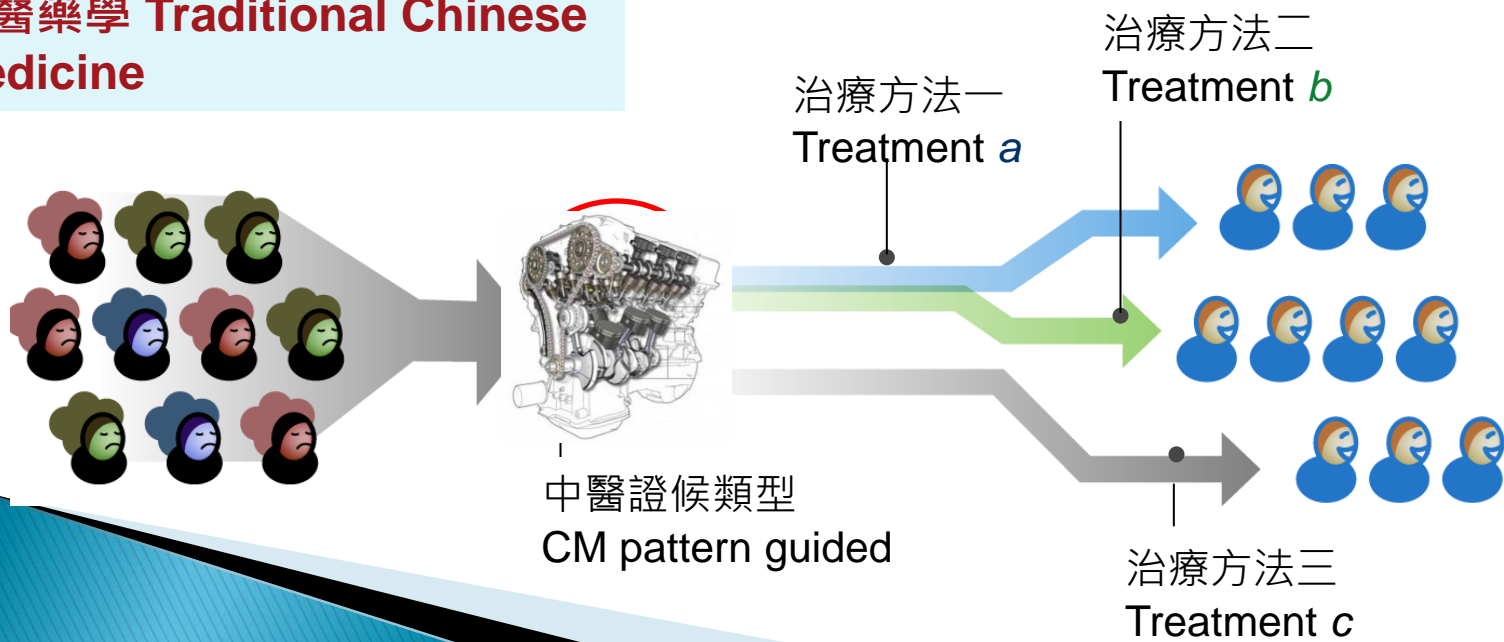
A 文本挖掘免疫及细胞因子网络总图 B 文本挖掘细胞因子高频网络图 (P<sub>5</sub>≥91)

# 生物信息研究平台

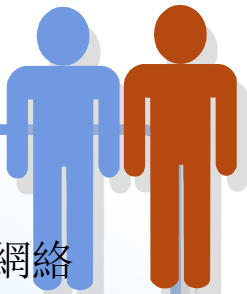




**中醫藥學 Traditional Chinese  
Medicine**

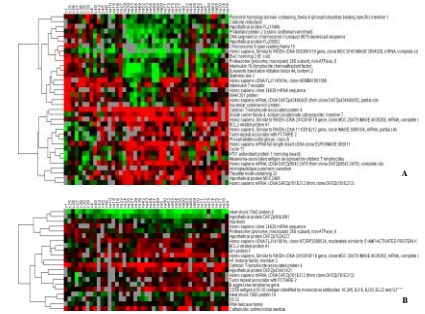
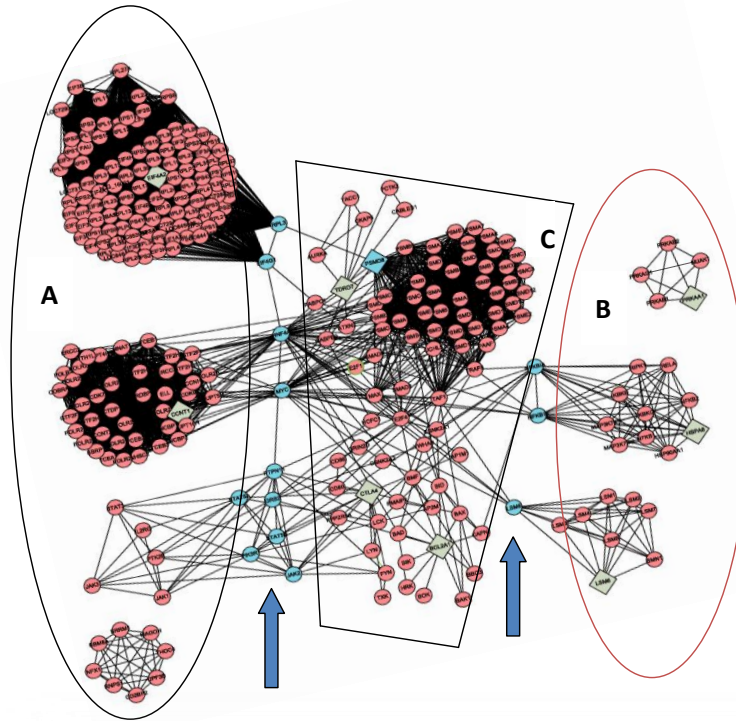






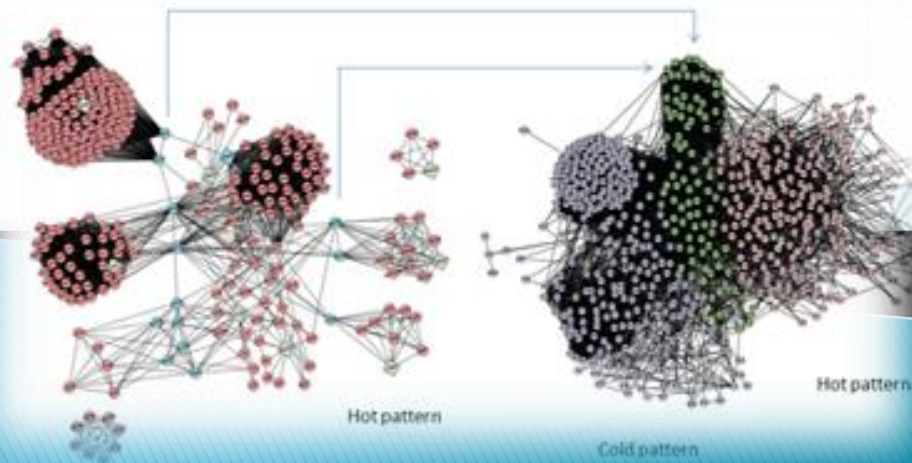
# RA 寒熱證候的網絡

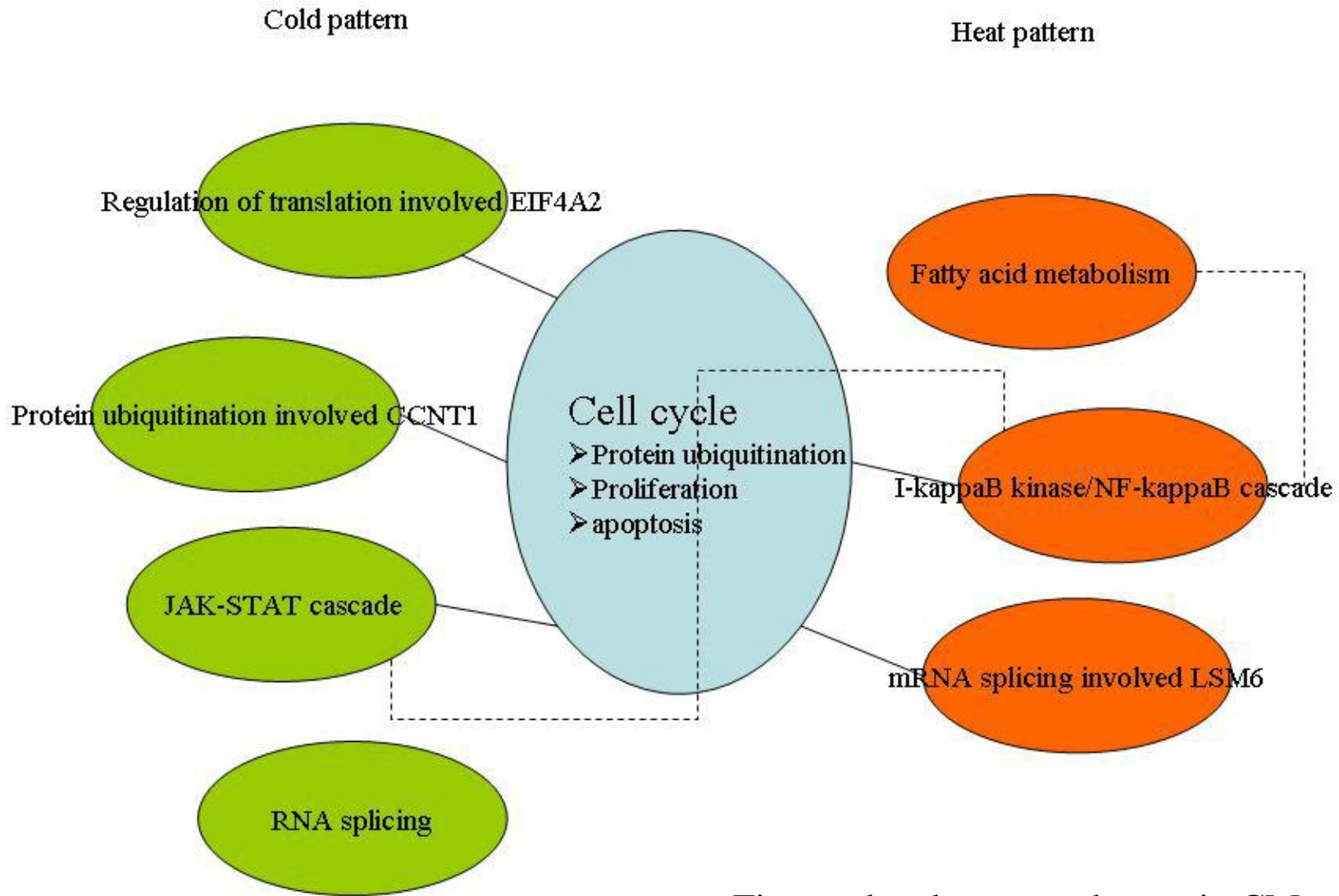
Cold Pattern & Hot Pattern



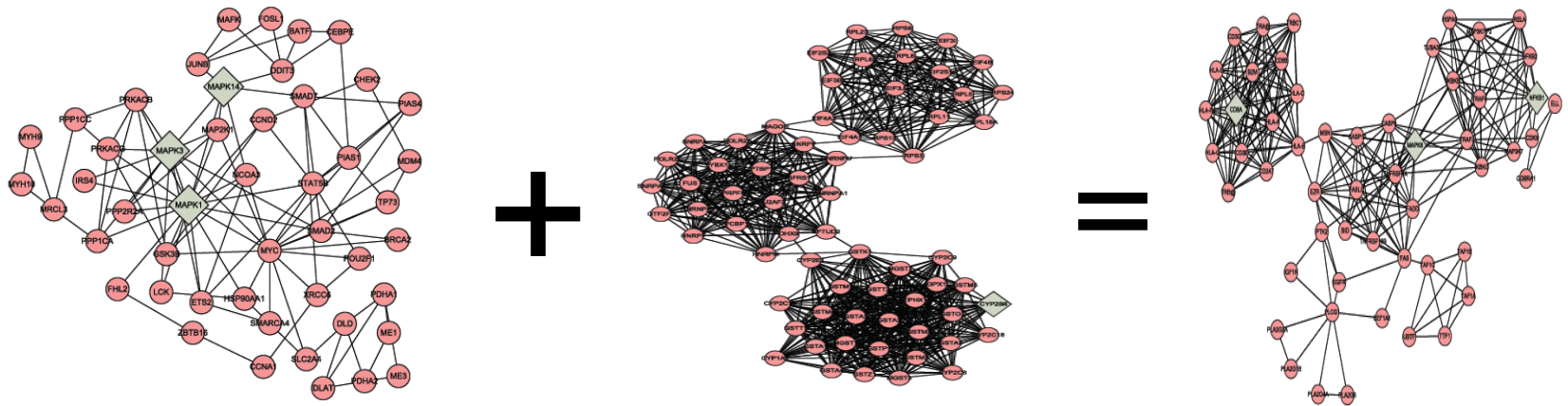
Biological characters:  
Cold and hot pattern  
in RA

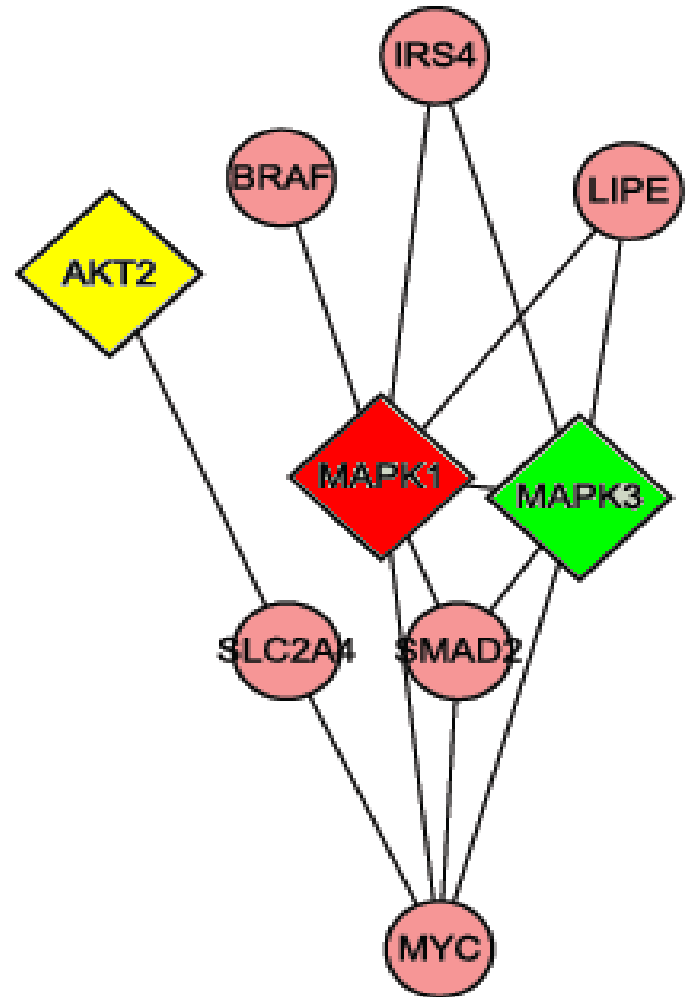
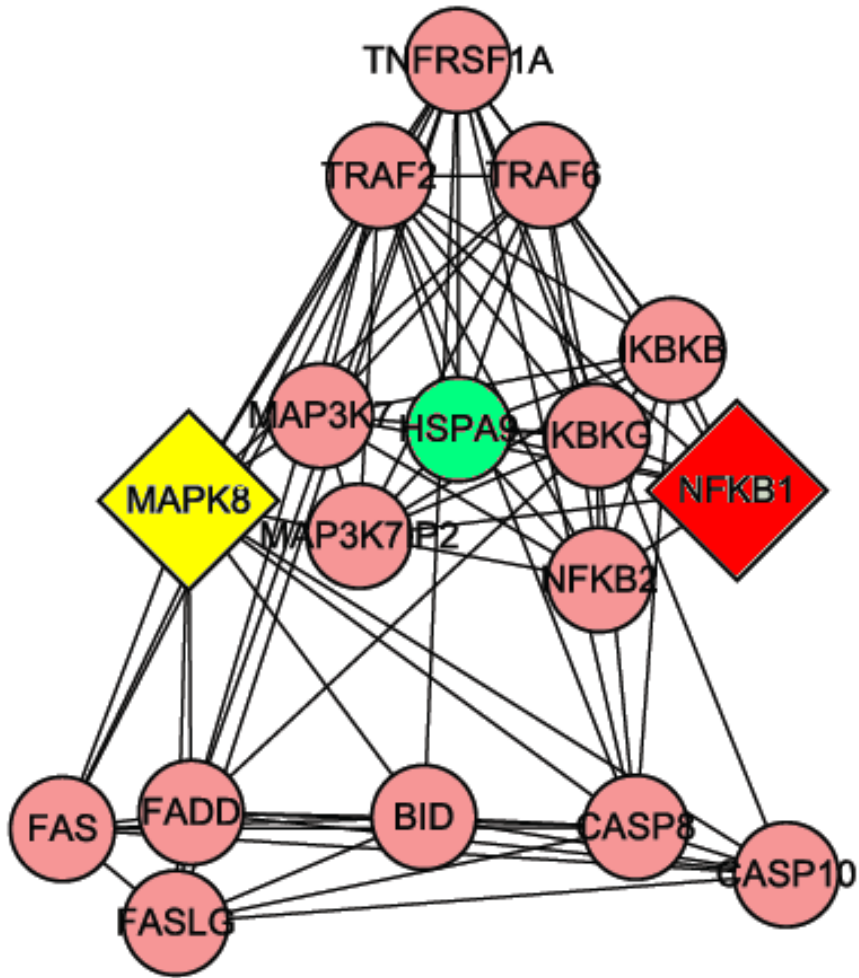
Pattern change:  
Cold to hot  
Hot to cold





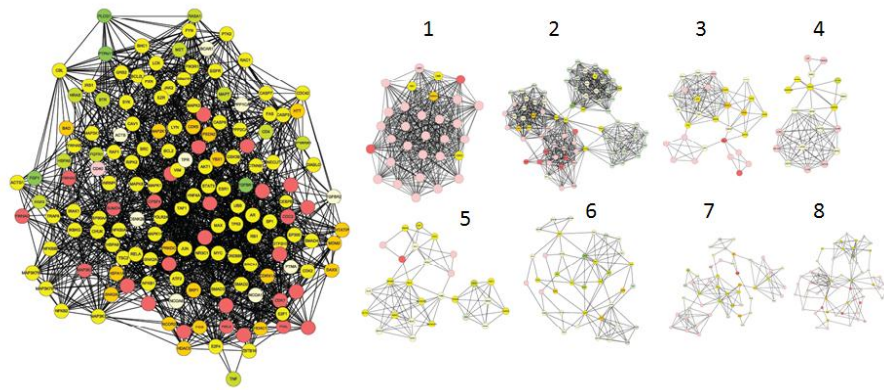
First molecular network map in CM pattern of RA. eCAM 2012 In press





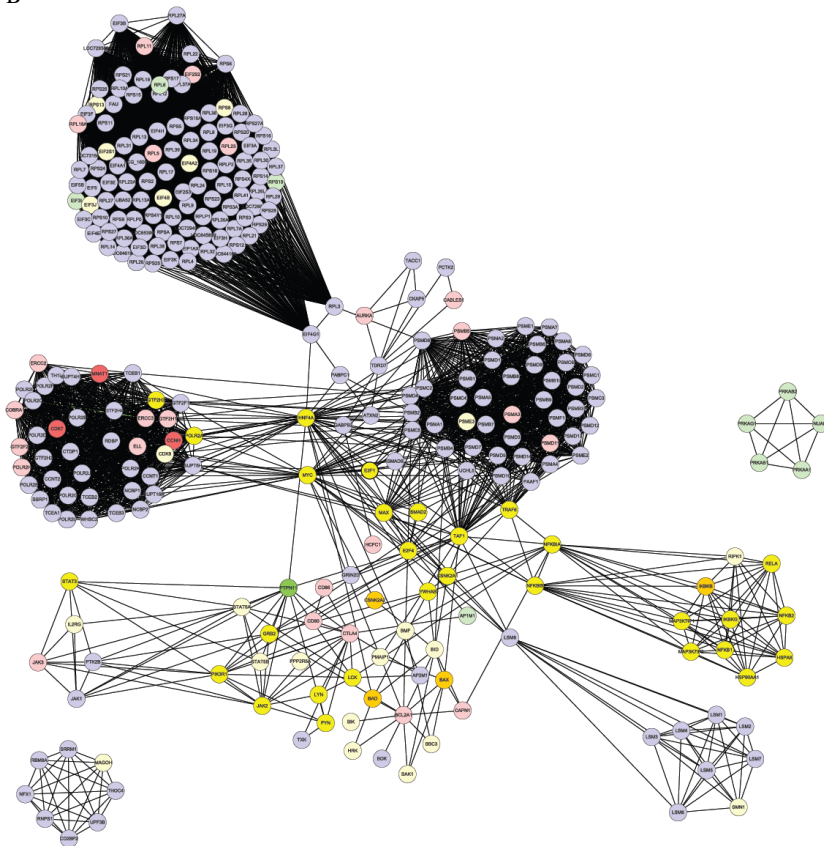


3-A



## 中藥複方藥理網絡

3-B

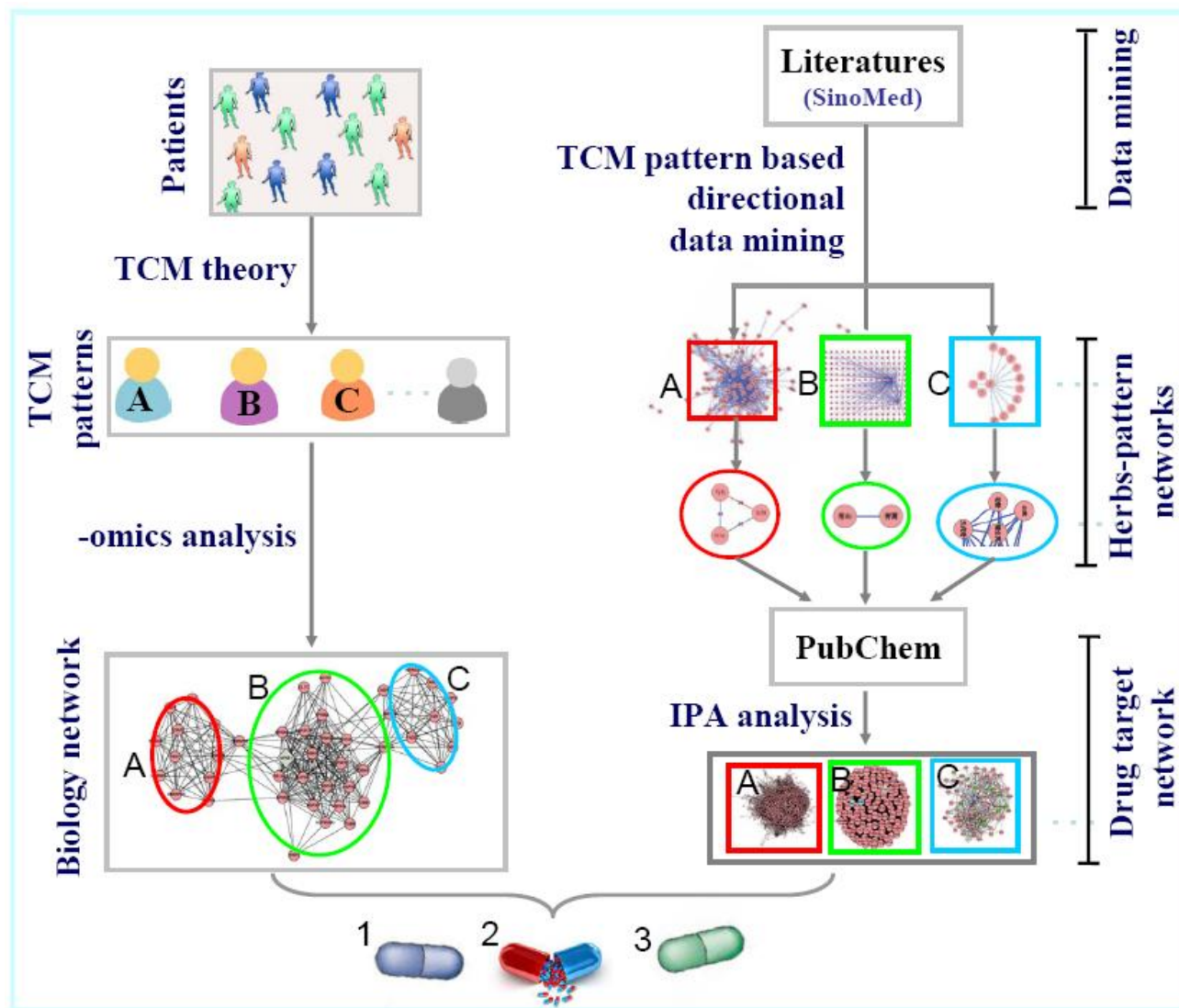


## 複方藥理網絡證候網絡對比



策略和方法：

文本挖掘方法  
生物信息方法  
新藥研發策略



# 中醫藥學院之 服務平台

# 1) 檢測／認證服務

## 「浸大中醫藥研究所有限公司」(IACM Ltd.)

成立「浸大中醫藥研究所有限公司」(IACM Ltd.)，主要通過對中醫藥的科學研究，促進社會人士的健康，並以高新的化學及生物醫學科技，用於中藥材及產品的質量控制。我們相信，一個達至國際水平的嚴格質量控制系統，是增加消費者信心，使產品在本地、全國及國際市場得以立足及推廣的重要元素。



# 中成藥檢測服務

本所可為中藥材及中成藥進行殘留農藥及重金屬質量水平測試，已獲得香港認可處授予 ISO/IEC 17025 認可資格，亦是香港首間附於大學的中藥產品製造商時獲得香港政府可的中藥產品重金屬及農殘留檢定資格。

- ▶ 一般性中藥安全性測試
- ▶ 定性定量分析
- ▶ 生物醫藥服務
- ▶ 一般藥典測試
- ▶ 西藥攙雜分析





- ▶ 臨床產品功能測試服務
- ▶ 與企業共同研發中醫藥產品，如中成藥、書籍、保健品等
- ▶ 香港中藥檢定中心「香港A嘜優質中藥認證計劃」  
(簡稱「A嘜認證」)



# 香港中藥檢定中心

**IACM Ltd.** 成立「香港中藥檢定中心」目的是希望建立一套統一的中藥品質檢計劃,更於2007年中推出「香港A嘜優質中藥認證計劃」(簡稱「A嘜認證」),產品要取得「A嘜認證」,必須通過「香港中藥檢定中心」的三重檢定:

- 對藥材進行鑑定,包括通過顯微鑑定;
- 通過ISO/IEC17025化驗室檢測重金屬、農藥殘餘及微生物含量,確保產品的安全性;
- 檢定中藥材的化學成份指標是否符合中國藥典或香港中藥材標準要求。



# 香港認可處(HKAS)認證的化學分析實驗室



學院現有通過香港認可處(HKAS)認證的化學分析實驗室，並授予 ISO 17025 的技術及管理認可資格。實驗室並已開發一系列有關於中藥質量指標的化學分析技術如殘留農藥、重金屬、指紋圖譜、含量測定等。



# 臨床醫療服務

## 中醫藥診所數目

- ▶ 診所數目：14間
- ▶ 其中8間：直接管理
- ▶ 另外6間：分別與醫管局及其他非牟利機構合作



# 藥用植物圖像數據庫



藥用植物圖像數據庫—收集了常見的1000多種藥用植物。  
自2009年10月16日起，訪客人數接近100萬，每天點擊率達到約2000次

獲美國國家圖書館2012



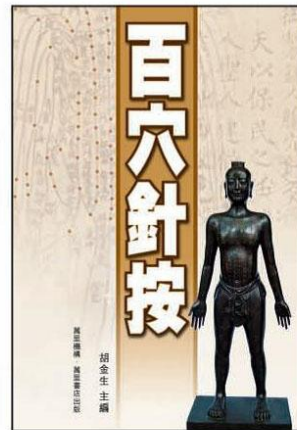
# 中醫藥叢書



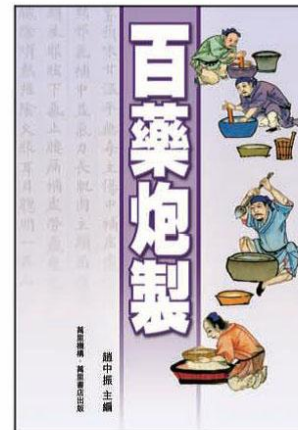
百藥圖解  
主編：趙中振



百方圖解  
主編：趙中振



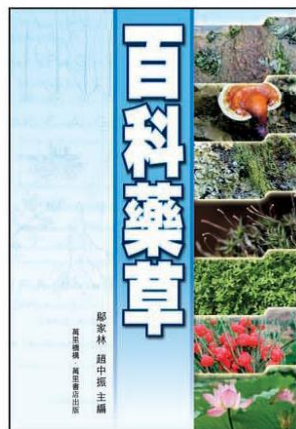
百穴針按  
主編：胡金生



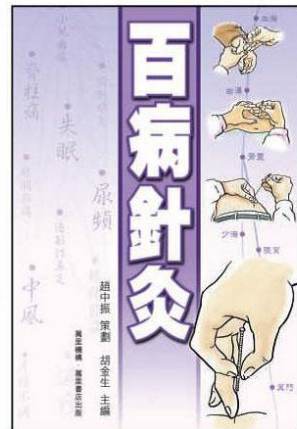
百藥炮製  
主編：趙中振



百藥鑑別  
主編：趙中振、李應生



百科藥草  
主編：鄔家林、趙中振



百病針灸  
策劃：趙中振  
主編：胡金生



百藥西來  
主編：趙中振、鄧平、洪雪榕



# 中醫藥保健產品

「浸大尚方」的產品由香港浸會大學名中醫精心處方，並由浸大中醫藥研究所有限公司嚴謹監製，採用由專業人員嚴格挑選之純天然中草藥、經測試，確保重金屬、農藥殘餘及微生物等符合香港法定標準。

而「浸大尚方」商標是由浸會大學視覺藝術院學生設計，該設計以一片綠葉的形態為中心，寓意產品採用皆為天然、安全、不含農藥及重金屬的天然草藥。另外，綠色亦予人一種清新及健康的感覺；而商標的外形為圓形而非葉的原有形態，目的是要表現出本產品乃是突破傳統，經由高科技生產，力臻完美。

| Convenient to Use   | Effective  | Safe   |
|---|--|--|
| 方便  | 有效   | 安全   |
| 無添加糖份<br>NO Added Sugar   | 無添加人造色素<br>NO Artificial Color   | 無添加防腐劑<br>NO Preservatives   |
|  通過重金屬測試<br>Passed safety test on heavy metals |  通過農藥殘餘測試<br>Passed safety test on pesticide residues |  通過微生物測試<br>Passed safety test on microbiological content |
|  草藥經過嚴格精選<br>Strictly selected Chinese herbs   |  純天然中草藥<br>Pure and natural Chinese herbs             |  |

## 互聯網(Online)

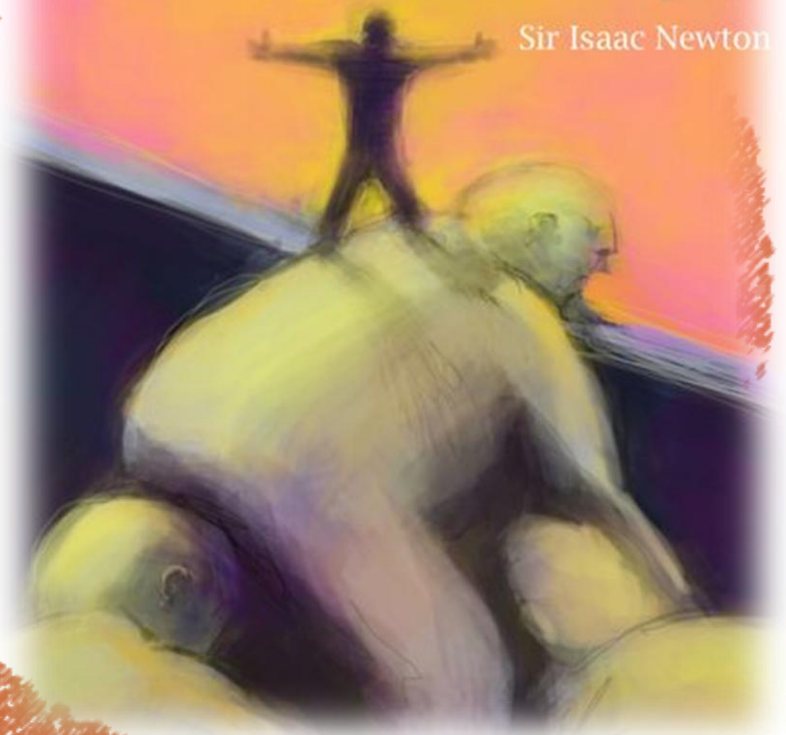
- 中醫藥的數據挖掘平台(Data mining for TCM platform)
- 適用於中醫藥的「證」及中藥複方之綜合生物信息方法 (*Integrated Bioinformatics approaches for TCM Zheng and herbal formula* )

*“If I have seen further it is  
By standing on the shoulders  
of giants”*

*-- Isaac Newton*

If I have seen further it is by standing  
on the shoulders of giants.

Sir Isaac Newton



**Thank You**