

中醫藥研究用動物模式的文獻收集

Collection of information regarding animal models for research in Chinese traditional medicine

國立成功大學醫學院

鄭 瑞 棠

摘 要

為了中西醫學整合的推進，使用當代的動物模式來研究中醫藥，必能使所得結果信服國際人士。因此，本計劃收集了常見疾病的動物模式來供參考。由於時間有限，謹先針對十二種疾病，分別為老年痴呆症(Alzheimer's disease)、中風(stroke)、學習和記憶障礙(learning and memory defect)、高血壓(hypertension)、高血脂(hyperlipidemia)、氣喘(asthma)、心臟衰竭(heart failure)、糖尿病(diabetes mellitus)、痛風(gout)、前列腺肥大(benign prostate hypertrophy)、腎衰竭(renal failure)、和腫瘤(carcinoma)等，來進行收集。依不同疾病，使用不同之關鍵字來檢索，找尋全國博碩士論文摘要檢索系統或英文醫學資料庫(MEDLINE)，取下合適之參考文獻。另外，由國內外圖書(包括日文)尋取可用的資料。然後，配合中醫的理論來加予整理；所得的資訊供國內同好們參考和使用。

關鍵詞：疾病的動物模式、中醫藥研究用、文獻資料。

Research Center of Chinese Traditional Medicine, College of Medicine, National Cheng Kung University

Juei-Tang Cheng

Abstract

In an attempt to improve the understanding of Chinese traditional medicine, the present proposal is performed to collect the information regarding the animal model used in the research. Thus, 12 kinds of animal model including Alzheimer's disease, stroke, learning and memory defect, hypertension, hyperlipidemia, asthma, heart failure, diabetes mellitus, gout, benign prostate hypertrophy, renal failure, and tumor or carcinoma were focused. The published paper in English, Japanese or Chinese has been collected. Then, the obtained model will integrate to the view of Chinese traditional medicine. Application of same animal model will help the reliability of results to convince the scientists who majored in modern medicine. Also, the obtained data can be shared with the scientist who is interested in the R & D of herbs and /or Chinese traditional medicine.

Keywords : Animal Model; Reference; Chinese Traditional Medicine

壹、前言

不同於講究速效掛帥的西方醫學領域，傳統中藥醫學乃是講究經驗法則，即使是西方醫學判定的同一種疾病，中醫仍會依患者病情的輕重緩急，患者的性別體質，以及發病的歷程及時間，在主要的處方藥劑加減某些藥材來進行最適切之治療，而這些用藥的法則，散見於歷來的典章史籍。儘管中藥醫學的療效及發展潛力無窮，但由於西方科學講求控制組及對照組的處理方式，因此，中醫藥的療效仍受到許多不平等的質疑。近年來，由於許多西方醫學原本束手

無策的疑難雜症在中藥的處理後露出了一線曙光；因此，國際上對中醫藥的相關研究也逐漸重視。由此可知，我國的傳統醫學，包括中醫藥，乃多年的經驗科學。可惜，中西文化的差異，因而造成我國的這項精華被曲解為「不科學」，中藥在歐美國家也只能在唐人街以「食品」來販售。近年，國人的自醒配合國外人仕研究中草藥的熱忱，中西整合醫學的主張日漸受到重視。因此，「中醫藥的現代化」就成為重要的課題！

事實上，傳統醫學要現代化就得設法讓當代醫學的人仕信服；不論國內外的醫藥工作者。因此，使用同樣的模式來評估或研發，恰如有相同的語言一般，所得結果必較易迎得信任。除了目前正在推動的中藥臨床試驗以外，使用國際間常用的疾病動物模式(Animal Model)來評估中藥的藥效或中醫的疾病病因探討，所得成果較易得到國外人仕的認同；對於「中醫藥的現代化」就成為重要的工具。

查詢我們現有的疾病動物模式相關的專業書本，只有吳銘芳和蘇裕家兩人所著「疾病動物模式的介紹」(藝軒圖書公司)及大陸的朱愉與多秀羣所著「實驗動物的疾病模型」(天津科技翻譯出版社)兩本而已。日本方面，田俣順和松本宏所共著的「Handbook of Disease Models in Animal」(醫齒藥出版株式會社)最常被使用。可能由於市場不大，消費者有限。因此，專業書本並不多。當然，參雜在各種疾病的書本，介紹其疾病的動物模式則較常見。

從事研究，往往必須利用有限的人力物力及時間來進行；然而，即使研究者本身已具備豐富的學養及研究經驗，在進行研究之際，相關參考文獻的收集及整理，仍需要耗費可觀的人力及時間來進行。不僅如此，還需再加上一番的整理及研讀，才可以由大量的資訊得到合用的知識；同時，其他進行相同或相似研究的學者，仍會耗費許多時間在進行同樣的文獻的蒐集工作。然而，即使是不同領域的研究者，除了特定的研究目標之外，有許多的基礎資料仍是可以通用的，例如實驗動物模式或實驗方法等。因此，研究人員，若能經由一整合完畢之資料庫找尋主要且基本的文獻，便可集中精力去收集其特定研究目標的文獻，除了可節省多餘的人力時間以進行更多的研究之外，同時，不同的研究內容，也可以具有相同的比較基礎。可惜，這一類的資料庫，目前仍未被建立。

因此，本項計畫就是希望能夠協助這項工作。

貳、材料與方法

一、資料的檢索

目前最常被使用來檢索參考文獻的資料庫，可分為中文資料庫及西文資料庫兩種。其中與醫藥相關的中文資料庫為全國博碩士論文摘要檢索系統（包含中文博碩士論文論文索引光碟資料庫及中華博碩士論文摘要），該資料庫收錄了台灣、中國大陸、香港、及美加地區各大學研究所中國人博士、碩士畢業論文索引及摘要。西文資料庫則是以利用 OVID 軟體為檢索工具的 MEDLINE (MEDlar on LINE)醫學資料庫（簡稱 OVID 醫學資料庫），此資料庫目前收錄約 3800 種全世界著名且各學科權威之期刊，其中 75%為英文文獻；25%為非英文文獻。主題範圍包括：臨床生命科學、生物科學、解剖學、法醫學、組織、基礎生命科學、心理學、社會醫學、農業、化學與藥物、醫技工業學、醫學資訊學、醫技設備學等學科。由於此二類檢索系統涵蓋廣泛，因此也經常被包含於各種研究資訊網的資料庫提供檢索之用，例如醫藥衛生研究資訊網（Health-Research Information NeTwork--HINT）等。本計劃使用合適之關鍵字檢索文獻，並運用布林邏輯運算元(Boolean operators)連繫、交集組合及不同的限制條件尋找適合的文獻。除此之外，再配合 OVID 檢索系統所提供的專題資訊選粹服務（Selective Dissemination of Information, SDI），可以隨時取得最新相關的參考文獻。

二、檢索方法

（一）全國博碩士論文摘要檢索系統(1984 每日更新)：

本系統尚包括中文博碩士論文論文索引光碟資料庫(1956-1997)及中華博碩士論文摘要（1920-1997）。資料庫內容收集台灣、中國大陸、香港、及美加地區各大學研究所中國人博士、碩士畢業論文索引及摘要，使用飛資得公司開發之中英文全文檢索系統(Fly base)，非一般套裝軟體。FlyBase 針對大量中英文資料的全文檢索，提供友善的使用者介面及迅速的系統回應。以下是 FlyBase

的特點：

- 1.模糊檢索 (fuzzy search)：使用者可依需求設定檢索符合率的下限。
- 2.多資料庫檢索：使用者可依需求，選擇多個資料庫，同時進行檢索。
- 3.欄位可依資料庫特性需求而設計，並可針對各欄位建立權威檔 (thesaurus)。
- 4.中文查詢介面，可作欄位群組檢索；有索引檔瀏覽功能，可直接瀏覽索檔。
- 5.提供串字功能，並可精確限定鄰近字；具年代、日期、限定檢索功能。
- 6.檢索歷史可組合或加上新條件再檢索；可瀏覽任一次檢索結果，並可設定 每頁瀏覽筆數；可儲存檢索策略，以後再叫出來執行。
- 7.在結果顯示畫面下，使用者查詢之關鍵字會呈現紅色，以方便快速瀏覽，並可進行連結檢索(hyperlink)，直接點選查詢相關資料。
- 8.完整的布林邏輯架構：可作欄位與欄位、SET 與 SET 的 and/or/not 邏輯運算。
- 9.檢索速度快：FlyBase 將索引檔做最佳化處理，檢索引擎採用壓縮及 cache 技巧，遇全文檢索或多層布林邏輯運算時，系統回應速度仍然很快。
- 10.資料輸出格式靈活：可由系統管理者自行設定，於 config 檔中定義輸出格式。
- 11.資料庫結構採變長架構：資料不受固定欄位之限制。

(二)OVID 醫學資料庫

MEDLINE (MEDlars on LINE) 自 1964 年美國國家醫學圖館建立全國性醫學文獻網路 MEDLARS，發展至今，已成為目前最重要的生物醫學資料庫，亦是全世界最大的醫學同儕審查資料庫。MEDLINE 每年固定收錄約 3800 種全世界著名且各學科權威之期刊，75%為英文文獻；25%為非英文文獻；49%與 EMBASE 資料庫為不重複收錄；52%文獻 BIOSIS 為不重複收錄者。收錄學科主題範圍涵蓋臨床生命科學、生物科學、解剖學、法醫學、組織、基礎生命科學、心理學、社會醫學、農業、化學與藥物、醫技工業學、醫學資訊學、醫

技設備學等學科。該檢索系統之特色為：

- 1.收錄自 1966 至最新月份的完整 MEDLINE 資料庫。
- 2.MEDLINE 資料庫提供五種方式供使用者選擇：
 - complete MEDLINE (1966-present)；
 - MEDfive (the most current five years)；
 - MEDfour (the most current four years)；
 - MEDtwo (the most current two years)
- 3.有特殊 LIMIT (限制指令)。
- 4.有 SAVESEARCH、SORT、MERGE、EXPLODE 等高效率檢索功用。
- 5.有專業人員 COMMAND 檢索方式及讀者的 MENU 檢索方式。
- 6.有超強索引典，幫助使用者快速且精確查尋所要之資料。
- 7.有 SDI 的功能，即時獲取每月所屬專科最新資料資訊。
- 8.有 LOCAL HOLDING 功能，節省讀者查尋期刊目錄的時間。
- 9.有替換索引查尋(PERMUTED INDEX)的功能。可查閱完整、專業的醫學標題或關鍵字。
- 10.有線教學指南(ON-LINE TUTORIALS)及詢問畫面(HELP-SCREENS)。
- 11.有超強 LINK 功能，可與 OVID 全文資料庫相互搭配使用，立即查到全文資料。
- 12.目前擁有 DOS 版、WINDOWS 版及 UNIX 版三種版本。

三、大陸文獻檢索方法

由於兩岸的通訊不良，難由網路拿取大陸方面的資料。因此，自中國醫藥學院(台中市)的圖書館檢索現存的資料及其他的可用資料。另外，配合主持人現有的大陸出版書籍，加予整理的綜合所成。

參、結果

本計劃檢索了常見疾病的動物模式十二類型，分別為老年痴呆症 (Alzheimer's disease)、中風(stroke)、學習和記憶障礙(learnig and memory defect)

高血壓(hypertension)、高血脂(hyperlipidemia)、氣喘(asthma)、心臟衰竭(heart failure)、糖尿病(diabetes mellitus)、痛風(gout)、前列腺肥大(benign prostate hypertrophy)、腎衰竭(renal failure) 和腫瘤(carcinoma)等，進行檢索，並經過整理成下列各項的成果，以疾病的英文字母為序，陳述於下，希望成為中醫藥同好或專業人仕合適之參考文獻。

一、老年痴呆症(Alzheimer's disease)

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[國內研究生的相關論文]

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葛根素改善大鼠學習障礙之研究 (The facilitating effects of puerarin on the learning deficit in rats) 研究生: 郭儷萱 (中國醫藥學院中國醫學研究所; 民 89)

六味地黃丸改善大鼠學習障礙之研究 (The facilitating effects of Liu-Wei-Di-Huang-Wan on the learning deficit in rats) 研究生: 鄭頌仁(中國醫藥學院中國醫學研究所; 民 89)

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[大陸的文獻]

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二、氣喘(asthma)

[英文的重要文獻]

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- 氮氧化物經由脂質過氧化作用導致肺臟毒性效應及其生物效應指標之研究 (Study on the pulmonary toxic effects and biological effective marker induced by nitrogen oxides via lipid peroxidation) 研究生: 劉鴻斌 (國立成功大學環境醫學研究所; 民 90)
- Magnolol 抑制血管平滑肌細胞增生之作用機轉 (Anti-proliferative effect of Magnolol on rat vascular smooth muscle cells) 研究生: 伍怡芬(國防醫學院藥理學研究所; 民 90)
- 和厚朴酚與厚朴酚對迷你豬氣管平滑肌之反應 (Effects of Honokiol and Magnolol on Tracheal Smooth Muscle in Piglet) 研究生: 柯建新 (慈濟大學醫學研究所;民 90)
- 利用氣壓描記器評估清醒小老鼠的呼吸道收縮 (Evaluation of airway constriction using barometric plethysmography in conscious, unrestrained mice) 研究生: 李耿中 (國立臺灣大學生理學研究所;民 89)

[大陸的文獻]

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5 alpha-還原酶親和性標籤的合成 (The Synthesis of a Novel 5alpha-Reductase Photoaffinity Label) 研究生: 王耀賢(國立成功大學藥理學研究所; 民 89)
葛花化學成分與藥理活性之研究 (Phytochemical and Pharmacological Studies) 研究生: 陳怡穎(國防醫學院藥學研究所; 民 89)

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- 茶多酚與鞣花酸對化學致癌劑誘發老鼠遺傳損傷的保護作用研究 (The protective effects of (-)-epigallocatechin gallate and ellagic acid on ENU-induced DNA damage and mutations in mice) 研究生: 陳巧倩(中國醫藥學院中國醫學研究所; 民 90)
- 亞砷酸鈉誘引人類皮膚細胞株 HaCaT 癌轉形之探討 (Study of sodium arsenite-induced neoplastic transformation in human skin HaCaT cells) 研究生:

江明璋 (國立中央大學生命科學研究所; 民 90)

以 EBV NLMP1 基因轉殖老鼠探討 EBV NLMP1 在致癌過程所扮演之角色
(Evaluation of the role of EBV NLMP1 in carcinogenesis using transgenic mice)

研究生: 蘇崧學 (長庚大學基礎醫學研究所; 民 89)

研究人類葡萄糖-6-磷酸去氫酶(G6PD)在癌細胞的表現及抗癌藥物對 G6PD 過度表現之纖維母細胞的影響 (Study of the expression pattern of human glucose-6- phosphate dehydrogenase (G6PD) in human cancer cell lines and the effects of anticancer drugs in G6PD-overexpressing fibroblast cells) 研究生: 林家瑜 (國立臺灣大學動物學研究所; 民 88)

GM-CSF 細胞素腫瘤疫苗用於癌症治療之可行性研究
(GM-CSF-Transduced Tumor Vaccine: Application in an Animal Model of Cancer Therapy) 研究生: 謝嘉玲 (國立臺灣大學微生物學研究所; 民 88)

中藥靈芝抗老化及抗癌作用之研究 (Studies on the anti-aging and anti-tumor effects of Ganoderma, a Chinese herbal medicine) 研究生: 蔡勝發 (國立陽明大學生物藥學研究所; 民 88)

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五、糖尿病(diabetes mellitus)

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椿葉水萃取液在 Alloxan 所誘發的糖尿病鼠中降血糖作用之研究 (The Study of Hypoglycemic Effects of Toona Sinensis Aqueous Leaf Extracts on Alloxan-induced Diabetic Rats) 研究生: 王珮憐 (高雄醫學大學醫學研究所; 民 90)

糙薏仁添加綠豆對 STZ 所誘發之糖尿病大白鼠脂質代謝與醣類代謝的影響 (Effect of Dehulled Adlay Added to Mung Bean on Lipid and Carbohydrate Metabolism in STZ-induced Diabetic Rats) 研究生: 江怡萱(國立海洋大學食

品科學系; 民 90)

反轉錄病毒載體表現大白鼠胰島素基因之研究 (The expression of rat insulin gene by retrovirus vector) 研究生: 賴敏銓(國立中興大學獸醫微生物學研究所; 民 89)

由 streptozotocin 引起糖尿病後大白鼠前肢感覺徑路之變化 (The changes in sensory pathway of forelimbs of diabetic rats induced by streptozotocin) 研究生: 陳牧君(國立臺灣大學解剖學研究所; 民 88)

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六、痛風(gout)

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白蛋白與 T-H 蛋白及其糖基在草酸鈣結晶過程中所扮演的角色。研究生：林和昇（國立清華大學生命科學系；民 89）

[大陸的文獻]

- 陳文照、林堅、金策、姜宏、吳士民、顏瑞生：實驗性痛風外周疼痛介質的動態變化。 *中藥藥理與臨床* 2000;16:37-38
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七、心臟衰竭(heart failure)

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[國內研究生的相關論文]

- 細胞凋亡在 Adriamycin 引起老鼠之心肌病變中角色的探討 (The Role of Apoptosis in Adriamycin-Induced Cardiomyopathy in Rats) 研究生: 鄧明生 (長庚大學基礎醫學研究所 ; 民 87)
- 敗血症大白鼠心臟功能衰竭時蛋白激酶 A、C 和 M 角色之探討 (Roles of Protein Kinase A、C、and M on the Cardiac Dysfunction in Rat during Sepsis) 研究生:

楊秀蘭(高雄醫學大學醫學研究所; 民 90)

1 - 腎上腺素受體基因多形性與早發性冠狀動脈疾病危險因子(Variant of the α 1-Adrenergic Receptor Gene and Risk Factors of Premature Coronary Atherosclerosis in Taiwanese Subjects) 研究生: 羅文帥(國立臺灣大學藥學研究所; 民 90)

脂多醣體對啮齒類動物心室肌細胞的抑制作用 (Depressant Effects of Lipopolysaccharide on Rodent Ventricular myocyte and papillary muscle) 研究生: 黃滄佑(國防醫學院藥理學研究所; 民 89)

第一型類胰島素生長因子在心臟重塑作用之角色 (The Role of Insulin-like Growth Factor I in Cardiac Remodeling) 研究生: 李文領(國立陽明大學臨床醫學研究所; 民 89)

類鴉片受體致效劑與拮抗劑對心臟功能影響之研究 (Studies of Opioid Agonists and Antagonists on Cardiac Function) 研究生: 洪啟峰(國立臺灣大學藥理學研究所; 民 88)

[大陸的文獻]

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八、高血壓(hypertension)

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 研究生: 羅永杰(國立臺灣大學食品科技研究所; 民 90)

大鼠高血壓發展中血管內皮細胞的功能性代償反應 (Endothelial Functional Changes during The Development of Hypertension in Spontaneously Hypertensive Rats) 研究生: 柳錦燕(國立成功大學生理學研究所; 民 90)

川芎素或 captopril 合併血管升壓素衍生物對門脈高壓鼠之血流動力學效應 (Hemodynamic effects of tetramethylpyrazine or captopril combination with terlipressin in portal hypertensive rats) 研究生: 林秉輝(國立陽明大學傳統醫藥學研究所; 民 89)

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- 銀杏萃取物減少餵食高膽固醇兔子經氣球損傷後的新內膜增生及間白素貝它 1 的表現 (Ginkgo Biloba Extract Reduces Neointimal Hyperplasia and Interleukin-1 beta Expression after Balloon Injury in Cholesterol-Fed Rabbits) 研究生: 楊德芳(國立陽明大學傳統醫藥學研究所; 民 88)

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整合蛋白相關蛋白參與記憶形成之角色及機制探討 (Role and Mechanism of Integrin-associated Protein (IAP) involved in Memory Formation in Rats and Mice) 研究生：張惠萍(國防醫學院生命科學研究所; 民 90)

槐花對鵝膏蕈酸誘發大白鼠學習記憶障礙效用研究 (The attenuating effects of Huaihua on IBO induced deficits of learning and memory in rats) 研究生：錢添發(中國醫藥學院中國醫學研究所; 民 90)

以學習記憶的取向探討安非他命引發地點偏好之神經機制 (Neural Mechanisms Underlying Conditioned Place Preference Induced by Amphetamine) 研究生: 林星宏(國立臺灣大學心理學研究所; 民 88)

檳榔鹼在大白鼠海馬迴之藥理學研究 (Pharmacological studies of arecoline in the rat hippocampus in vitro) 研究生: 鄧振銘(國立臺灣大學藥理學研究所; 民 88)

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氧自由基在腎絲球硬化的致病性中所扮演的角色 (Role of Reactive Oxygen Species in the Pathogenesis of Glomerulosclerosis) 研究生: 陳鴻鈞(高雄醫學大學醫學研究所; 民 89)

尿毒症鼠在不同血漿三碘甲狀腺素濃度下腎臟排泄鋅之研究 (Effects of the Alteration of Plasma Triiodothyronine Level on Renal Zinc Excretion in Uremic Rats) 研究生: 邱伯勤(國立陽明大學生理學研究所; 民 88)

冬蟲夏草對 Adriamycin 引起腎絲球傷害之影響 (Effects of Cordyceps sinensis on Adriamycin Induced Glomerular Nephrosis) 研究生: 張權發(國立交通大學生物科技研究所; 民 86)

部份腎臟切除後大白鼠殘存腎臟對抗利尿素的反應 (Response of remnant kidney to arginine vasopressin in partially nephrectomized rats) 研究生: 蔡新茂(國立陽明大學生理學研究所; 民 82)

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延胡索對於缺血性-再灌流大鼠腦梗塞效用之研究 (Effect of Rhizoma Corydalis on Cerebral Infarct in Ischemia-Reperfusion Injured Rats) 研究生: 廖恩賜(中國醫藥學院中國醫學研究所; 民 90)

「細胞自戕」在缺糖引發之神經傷害中所扮演之角色 (Role of Apoptosis in Hypoglycemia-induced Cell Death) 研究生: 王瑱瑄(國立中興大學生命科學院碩士在職專班; 民 90)

Carboxyfullerene 對小鼠大腦局部缺氧之調控 (The modulation of murine focal cerebral ischemia by carboxyfullerene) 研究生: 王雅慧(國立成功大學微生物暨免疫學研究所; 民 90)

骨骼型態發生蛋白質在大白鼠初級培養大腦皮質神經細胞的神經保護作用 (Neuroprotective Effects of Bone Morphogenetic Proteins (BMPs) in Primary Cortical Culture) 研究生: 陳素瑜(國防醫學院生理學研究所; 民 90)

十字花科蔬菜衍生物對 Lipopolysaccharide 與 Interferon- α 所誘導之一氧化氮的影響 (Suppression of Lipopolysaccharide and Interferon- α Induced Nitric Oxide

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- 中藥治腦方劑對腦缺氧治療效果之研究 (Therapeutic Effects of Chinese Medicine on Ischemic Stroke-A Study of Cerebral Active Regimens) 研究生: 甘宜弘(台北醫學院醫學研究所; 民 90)
- 生脈散對於熱中風的療效評估 (Therapeutic evaluation of Sheng Mai San) 研究生: 周呈岳(國立陽明大學生理學研究所; 民 90)
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- 局部腦皮質傷害後迅早基因及神經營養基因表達之改變:著重遠處及延遲性之影響 (The Impact Toward Expressions of Immediate Early Genes And Neurotrophic Genes After Focal Cortical Injury: Emphasis on Delayed Changes in the Distant Brain Areas) 研究生: 劉家壽(高雄醫學大學醫學研究所; 民 89)
- 腦虛血所引發出血性胃潰瘍之病生理機轉及藥物防治作用之探討 (Pathophysiological Mechanisms of Gastric Mucosal Hemorrhagic Ulceration Induced by Brain-Ischemia: Protection by Several Drugs) 研究生: 林慧茹(國立成功大學藥理學研究所; 民 89)
- 氫氧自由基在高壓氧氣暴露誘發大腦損傷中所扮演的角色 (The Role of Hydroxyl Radical in Brain Injury Induced by Hyperbaric Oxygen Exposure) 研究生: 林宜興(國防醫學院海底醫學研究所; 民 89)
- 自由基對神經細胞之致毒作用及其訊息傳遞之研究 (Studies on free radical-induced signal transduction and cytotoxicity on neuronal cells) 研究生: 詹錦豐(國立臺灣大學毒理學研究所; 民 89)
- 新生動物腦缺氧時穀胺酸鹽接受器與拮抗劑對多巴胺之調節所扮演的角色及其可能之臨床應用 (The role of glutamate receptor and its antagonist in dopamine regulation during neonatal hypoxia and the clinical application) 研究

生：郭夢菲(國立臺灣大學臨床醫學研究所;民 89)

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肆、討論

在短短的一個月不足的期限，主持人受託接下這項幾乎不可能的任務；目的在於幫助建立一項工具，協助中醫藥現代化的推進。當然，由於時間緊逼，所得成果不能十全十美。但是，本著學術的堅持精神，我們自認全力而為了。若有未盡理想之處，敢請 賜諒與指教。

疾病的動物模式(Animal Model)在國外極常使用，因為它是藥物在臨床前的最佳評估工具，也是研究疾病的病因或病狀生理最常用之技術。因此，許多研究人員全力在研發這項技術；由化學物質的傷害到物理或手術方式的介入等。例如：用化學物質的注射來造成動物的肝炎、糖尿病或其他的異常，或是使用血管結紮來造成中風，或用手術來引致異常等。然而，一種疾病常有多種動物模式可供參考使用。對於剛要使用這項技術的中醫藥同好要如何慎選才最恰當呢？否則，使用不妥的話，所得結果可能只能當為「改善這項毒害」而非真正的評估效益了！

慎選恰當的動物模式，要如何來執行呢？首先，可由發表的文獻去尋找「最廣被使用的模式」。以中風為例，文獻列有各種不同的技術可供動物模式，可是，以大腦中動脈阻塞中風(MCA)的技術最被使用。因此，藉由這項技術所得的成果才最易信服當代研究人員。另外，詢問已在從事這項研究工作的專業人員，除了可得到最佳的動物模式之外，更可由其寶貴的經驗得到助益的建議。然而，

選擇動物模式最忌「好高騖遠」的心態，例如：中東地區特產的小鼠才會出現的疾病，適合我們使用嗎？因此，身邊容易取得的動物也是需要考慮的因素！

由化學物質引致的動物模式，較易被指責為「毒害」的變化。因此，在生物技術的協助下，基因轉殖動物(Transgenic Animal)就發展成為適用的模式。以第一型糖尿病為例，使用 streptozotocin 來破壞胰島細胞就已日漸被基因改造的 BB/W 大白鼠所取代。高血壓的研究，也都用遺傳型的 SHR 在評估。然而，基因轉殖動物在我國尚屬起步而已，雖然有許多國內學者努力在研發，目前以進口為主。因此，貨源取得較不易。在吳銘芳及蘇裕家共寫的「疾病動物模式的介紹」乙書(藝軒圖書公司)，糖尿病、肥胖、老化、神經病變(癲癇)、高血壓、肝炎或肝癌等基因改變的自發性動物皆有介紹。

到目前為止，動物模式的研發皆全力朝向疾病變化的型式來推展。可是，不幸地，沒有一項動物模式完全與人體的病變相同；可能人體的變化較為複雜所致。因此，所得結果可供為臨床前的「接近人體疾病」之參考，但仍無法成為「絕對性」的效果。然而，在保障病人的權益方面，這項參考成果是極為有益！

在中醫藥研究方面，動物模式的使用日漸廣泛；兩岸的學者皆同。可是，基於中西醫學的思源不同，動物模式在傳統醫學的使用則仍極有限。例如：中風、高血壓或腫瘤等常用動物模式，在傳統醫學的使用並不多見。另外，傳統醫學的「消渴症」最接近當代的「糖尿病」了，可是，中醫將「消渴症」分為「上消」、「中消」和「下消」三種，目前的動物模式只能以接近「下消」來供使用而已。由此可知，中醫適用的動物模式仍需要全力去研發！

伍、結論與建議

本項計畫協助收集了十二種疾病的動物模式之文獻，供中醫藥研究之參考。主持人在不到三個月的短暫期間，只能全力以赴，較難達到完美的程度。因此，建議委託的執行期限不宜太短。另外，海峽兩岸的學術通訊管道不佳，為了發揚我國的傳統醫學，這項交流的互通極需打開。

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