

香港大學心臟血管研究所

THE INSTITUTE OF CARDIOVASCULAR
SCIENCE AND MEDICINE



2003 Annual Report

Mission Statement of the Institute of Cardiovascular Science and Medicine

The Institute of Cardiovascular Science and Medicine (ICSM) commits itself to strive for excellence in research, teaching and training in cardiovascular sciences which contributes to the prevention and patient management of cardiovascular diseases in Hong Kong.

We shall offer the highest standards of teaching research and scholarship in an interactive environment conducive to creativity, to innovative learning and to freedom of thought, enquiry and expression in all aspects of cardiovascular sciences.

We shall continue to undertake research, teaching and other forms of service in clinical and basic cardiovascular sciences which will advance our quest for wisdom, truth and excellence in biomedical science at large.

We shall make known the mission of this Institute in Hong Kong and internationally

Governance

Council

The members of the Institute elect a Council, who are responsible for carrying out the work of the Institute according to its Mission, Objectives, By-Laws and Regulations. The Council consists of the Officers, the immediate Former Director (if available), and three to ten Council Members. The Officers of the Institute are the Director, Deputy Director, Honorary Secretary and Honorary Treasurer. Each Council serves the Institute for a period of two years. The Third Council of the Institute, elected at the 5th Annual General Meeting on 1st December 2001, remained in office from January - December 2003, and the Fourth Council of the Institute was elected at the 7th Annual General Meeting on 6th December 2003. The members of the Third and Fourth Councils were:

Third Council of the ICSM (December 2001 - December 2003)

Director:	Professor C.P. Lau	Council	Dr. A.K.T. Chau
		Members:	Dr. W.H. Chen
Deputy			Dr. B.M.Y. Cheung
Director:	Professor T.M. Wong		Dr. M.L. Fung
			Professor C.R. Kumana
Honorary			Dr. K.L.F. Lee
Secretary:	Dr. H.J. Ballard		Professor R.Y.K. Man
			Dr. Karmin O
Honorary			Dr. K.C.B. Tan
Treasurer:	Dr. Y.F. Cheung		Dr. H.F. Tse

Fourth Council of the ICSM (December 2003)

Director:	Professor T.M. Wong	Council	Dr. H.J. Ballard
Deputy		Members:	Dr. A.K.T. Chau
Director:	Dr. H.F. Tse		Dr. W.H. Chen
Honorary			Dr. B.M.Y. Cheung
Secretary:	Dr. M.L. Fung		Professor C.P. Lau
Honorary			Dr. K.L.F. Lee
Treasurer:	Dr. Y.F. Cheung		Professor R.Y.K. Man
			Dr. K.C.B. Tan
			Professor P.M. Vanhoutte

Membership Sub-Committee of the Council

Dr. H.J. Ballard Dr. B.M.Y. Cheung Dr. M.L. Fung

Membership

Membership of the Institute of Cardiovascular Science and Medicine continued to increase in 2003. At the end of the year 2003, membership stood at 147, and consisted of 12 Founding Members, 56 Full Members, 22 Associate members and 57 Affiliate Members.

Criteria for membership

Clinicians, scientists, researchers and students with an interest in the cardiovascular field are invited to become members of the Institute. The classes of membership open to applicants are Full, Associate or Affiliate Membership.

All applicants for admission shall

1. Be at least 18 years of age; and
2. Be of good character and repute; and
3. Undertake in writing to adhere to the By-Laws of the Institute, as amended from time to time.

Applicants for admission as a Full Member shall also

1. Be a full time or honorary teacher (Assistant Professor, Honorary Clinical Lecturer or above) of the University of Hong Kong or be deemed to be holding an equivalent position; and
2. Be engaged in research in cardiovascular science or cardiovascular medicine, as evidenced by his or her published works.

Applicants for admission as Associates shall also

1. Possess either a medical degree (MBBS or equivalent) plus a higher qualification (MRCP or equivalent), or a doctorate (PhD or equivalent) in science; and
2. Be engaged in research in cardiovascular science or cardiovascular medicine.

Applicants for admission as Affiliates shall also

1. Possess a University degree or equivalent in medicine, nursing or science; and
2. Be engaged in or have a strong interest in cardiovascular research.

Applications for membership, accompanied by the appropriate supporting documents (eg. resume, list of relevant publications, copies of certificates) should be submitted to the Honorary Secretary, to whom membership enquiries may also be addressed. The application form may be obtained by writing or e-mailing (icsm@hkucc.hku.hk) to the Honorary Secretary, or it may be downloaded from the membership section of our website (<http://www.icsm-hk.org>)

Research Activities Of The ICSM

Organisation of Research

The Institute of Cardiovascular Science and Medicine aims to achieve academic and research excellence in cardiovascular sciences and medicine which contributes to the prevention and patient management of cardiovascular diseases through an interactive environment conducive to integrative teamwork and multidisciplinary approach to research. The research themes for our research are organized into four major projects, namely Epidemiology & Genetics, Atherosclerosis, Inflammation & Thrombosis, Novel Therapies, and Complications. The **Epidemiology & Genetics** group will evaluate cardiovascular risk factors in the Chinese population, predict trends in cardiovascular diseases, and identify genetic markers for susceptibility to cardiovascular diseases. The **Atherosclerosis, Inflammation & Thrombosis** group study the pathogenesis of vascular disease, particularly whether homocysteinaemia, inflammatory markers such as CRP or adrenomedullin are suitable targets for treatment and prevention of atherosclerosis. The **Novel Therapies** group are the only team in Hong Kong that is already developing stem cell transplantation for humans. Their focus is the regeneration of normal heart muscles, neurons and blood vessels in areas damaged as the result of atherosclerotic disease. The “**Complications**” team comprises two research groups: the **Hypoxia & Ischaemia** group are characterising the responses and adaptations of various organs to hypoxia or ischaemia, with the particular aim of exploiting preconditioning to induce some degree of protection against target organ damage in vascular disease, whilst the **Arrhythmia & Heart Failure** team are actively developing new treatments for these conditions, which commonly occur in patients with vascular disease, and which carry a very high mortality.

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Epidemiology & Genetics: Cardiovascular Risk Factors

Co-ordinator Dr. B.M.Y. Cheung

Key team members Stephen WK Cheng, BMY Cheung, YF Cheung, TH Lam, Sidney CW Tam.

Outline: There is a shortage of prospective data on cardiovascular risk factors in Chinese populations. Our group are engaged in epidemiological studies involving thousands of subjects, which are representative, because of random sampling, and prospective, entailing a long open-ended follow up period. Clinical information will be obtained and DNA stored for future nested case control studies after 5-10 years of follow-up. Sub-samples of the subjects and the stored DNA and plasma will be used immediately for the investigation of genetic markers for diabetes and hypertension. Within the research team for this project, we have expertise in clinical, epidemiological, genetic, molecular, cellular and pharmacological research to facilitate the various aspects of the programme.

Epidemiology. We are examining the prevalence of risk factors in Hong Kong Chinese men and women, including hypertension, diabetes, hypercholesterolaemia, obesity and smoking, and how these change over time. The trends in the risk factors can be used to guide public health policy. Other projects include both retrospective and long-term prospective studies to investigate the effects of perinatal influences on cardiovascular risk factor development in adult life and the cardiovascular risk factors of peripheral vascular diseases, whilst a separate study focuses specifically on genes, lifestyle and diseases in Chinese elderly in Hong Kong.

Genetics: DNA collected in the large epidemiological studies can be used in the investigation of genetic markers for susceptibility to diseases such as diabetes and hypertension using the candidate gene approach and data from the prospective studies.

Pathogenesis: Atherosclerosis, Inflammation and Thrombosis

Co-ordinator Professor Ricky Man

Key team members JP Bourreau, WH Chen, B Cheung K O, YL Siow, HF Tse, SCF Tam, F Tang

There is mounting evidence that inflammation plays a role in the pathogenesis of atherosclerosis. Small increases in serum levels of C-reactive protein (CRP), a marker of systemic inflammation, are associated with increased risk of ischaemic heart disease, and serum CRP level is an independent risk factor for cardiovascular disease. The underlying mechanisms of the inflammatory responses in atherosclerosis and diabetic vascular complications are not clear. This is an important area of research as a better understanding of these mechanisms may help to design novel therapeutic approaches. Adrenomedullin is a peptide that acts as a local autocrine and/or paracrine vasoactive hormone, and it has vasodilator and blood pressure lowering properties. It may also play a role in mediating inflammatory responses. Plasma concentration of adrenomedullin is elevated in patients with cardiovascular disease, in inflammatory states and septic shock, and in diabetic patients with complications. Platelet aggregation and thrombosis also play a crucial role in acute coronary syndromes, and studies are underway to evaluate the combination of anti-platelet and anti-thrombin therapy in these patients.

Novel Therapies: Stem Cell Transplantation and Traditional Chinese Medicine

Co-ordinator Dr. H.F. Tse

Key team members SWK Cheung, CP Lau, GR Li, JCL Zhang

Stem Cell Transplantation

Outline: Coronary atherosclerotic disease and stroke is a major cause of morbidity and mortality in industrialized nations. Sudden blockage of coronary and cerebral arteries can cause heart attack, which may be complicated by shock, chronic heart failure, strokes, and/or sudden death. Despite advances in drug therapy and catheter-based intervention, which are targeted toward opening of the blocked arteries and restoration of normal blood flow to the heart muscles and brain, a significant number of cases continue to result in loss of normal heart function and cerebral function. Loss of heart muscles results in heart failure, and in the most severe form, the patients have survival less than 1 year. Loss of brain function results in impairment of motor and sensory function. Drug treatment remains palliative, and heart transplantation is limited by the availability of donors. Regenerating normal myocardium, neurons and blood vessels is conceptually an attractive way to restore normal function to the damaged heart or brain. Our research group contains the only team in Hong Kong that is already developing stem cell transplantation for humans.

Traditional Chinese Medicine

Outline: There is an enormous, and presently under-exploited, potential for the use of Chinese medicinal drugs as an adjunct to, or replacement for, western medical approaches. These substances are very attractive to consumers, because of their natural origins, but a proper scientific approach to the investigation and validation of their properties is essential. Hong Kong, with its East-meets-West culture has a great advantage over both western and mainland Chinese Universities in this area, and the ICSM is

excellently placed to carry out a research programme: our group includes cardiologists, cardiovascular physiologists and cardiovascular pharmacologists, who are already very active in this area, and who have long-standing research collaborations on the topic with groups in the mainland.

Complications

Pathogenesis of Complications: Hypoxia and Ischaemia

Co-ordinator Professor T.M. Wong

Key team members HJ Ballard, JP Bourreau, YF Cheung, ML Fung, PCW Fung, GR Li, F Tang

Outline: When an organ is subjected to hypoxia/ischaemia, it initiates a series of responses, some of which serve to protect the tissue against hypoxic/ischaemic damages, while others exacerbate the damages. Our goal is to identify the beneficial responses, and develop strategies to enhance them, and determine the deleterious responses so that we can develop means to negate them. We put particular emphasis on the heart and the brain as the incidence of ischemic heart diseases and stroke is increasing in Hong Kong and China. We are involved in characterising the responses and adaptations to acute or chronic hypoxia, and in the investigation of the phenomenon of the protection or pre-conditioning, which is particularly pronounced in the heart. Understanding of the compensatory responses and mechanisms of preconditioning will enable us to design better strategies in the prevention and treatment of diseases/disorders arising from hypoxia/ischaemia. The role of free radicals as intermediaries of hypoxic ischaemic injury is also under investigation.

Treatment of Complications: Arrhythmia and Heart Failure

Co-ordinator Professor C.P. Lau

Key team members HW Chan, K Fan, CP Lau, KLF Lee, SK Leung, GR Li, HF Tse, CM Yu, J Zhang

Outline: Coronary artery disease may result in a number of cardiac complications, including arrhythmia and heart failure. Heart failure is responsible for 20% of all mortality in Hong Kong, and the incidence of heart failure is increasing. Many cases of death from heart failure are sudden, usually related to the occurrence of cardiac arrhythmias. The Arrhythmia Service of the Cardiology Division of Queen Mary Hospital, the University of Hong Kong, is the most internationally recognized cardiac arrhythmia centre in Asia. We have an excellent track record of genetic, molecular, cellular, epidemiology and clinical research in heart failure and arrhythmias. Members of our research group are international authorities and pioneers in using pacing and ablation for atrial fibrillation, the use of catheter based cooling energy (cryoablation) for the ablation of focal atrial fibrillation, animal and cell model for anti-arrhythmic drug development, electronic cardiac signal processing during arrhythmia (patent pending), reverse cardiac remodelling after cardiac resynchronisation etc. Our group will develop new ablative device technology.

Visitors and Seminars

Dr. Ronald A. Li from the Institute of Molecular Cardiobiology at The Johns Hopkins University gave a fascinating seminar entitled "Protein engineering, Gene therapy, Embryonic stem cells" on January 7, 2003. ICSM members had a discussion with Dr. Li during his visit and a number of research interests from cardiac electrophysiology to stem cell therapy were identified for future collaboration. Dr. Li was invited as an overseas speaker to join our 7th Annual Scientific Meeting and before the Meeting on December 5, he delivered a talk entitled "Human Embryonic stem cells for tissue engineering: A new era of regenerative medicine" to members in the Department of Physiology, HKU and the ICSM.

Scientific Meetings

The Seventh Annual Scientific Meeting: Heart Failure: Adaptation, Cardioprotection and Repair

The Seventh Annual Scientific Meeting was held at the Hong Kong Convention and Exhibition Centre on December 6th and 7th 2003. The programme had a strong focus on the heart: from basic research on cardiac functions to clinical therapies and it comprised four symposia and an interactive workshop. The Meeting started with twelve oral communications and eighteen chaired poster presentations, from which three best presentation prizes were selected and awarded. Professor L.C. Tsui, VC of the University of Hong Kong, was invited to deliver an opening lecture on Human Genomics and a press conference was jointly held in association with the Meeting. The Symposia were devoted to "New Approaches for Cardiac Repair", "Responses and Adaptations to Hypoxia", "Cardioprotection through preconditioning", and "New Approaches to Heart Failure". Plenary lectures and invited talks were delivered by our overseas visitors, Thomas J. Stegmann from the Fulda medical Centre, Germany, Ronald Li from the Johns Hopkins University, USA, Prem Kuman from the University of Birmingham, UK, Xia Qiang from Zhejiang University, China, Gordon Moe from the University of Toronto, Canada, and Vince Paul from the St. Peter's Hospital, Chertsey UK, and also by our local faculty members, HF Tse, J Zhang, GR Li, ML Fung, PM Vanhoutte, TM Wong, BMY Cheung and CP Lau. A successful educational session was held on Sunday and the workshop was focused on clinical cardiology chaired by WH Chen of our Institute. The Meeting concluded with the award of the best presentation prizes and a closing remark from the ICSM Director. The meeting attracted 260 registrants, and 61 abstracts were submitted.

Treatment of Cardiovascular Diseases – A new Era

The symposium was organized by AstraZeneca Hong Kong Limited under the auspices of the ICSM and Professor C.P. Lau was the Chairperson of the meeting. It was held on July 25, 2003 and was very well received by physicians and cardiologists in Hong Kong to exchange information on the latest advances in cardiovascular therapies.

Media Briefings

In association with the 7th Annual Scientific Meeting, Dr. R.A. Li from the Institute of Molecular Cardiobiology at The Johns Hopkins University, and Professor C.P. Lau and Dr. H.F. Tse from the ICSM held a press conference entitled "Stem Cells therapy: Novel Strategy for Heart Tissue Regeneration for

Heart Diseases" to announce the joint collaborative research on transplantation of genetically-engineered human embryonic stem cell-derived cardiomyocytes to modify cardiac excitability. The news release also included the talk of Professor L.C. Tsui, VC of the University of Hong Kong, on Human Genomics. Both of these topics, as well as the 7th A.S.M., were extensively reported in the media.

Professor C.P. Lau and Dr. H.F. Tse held a press conference on January 3 on a topic "Stem Cells Therapy: Novel Strategy For Heart Tissue Regeneration in Patients after Heart Attack".

Community Service

Hyperhomocysteinaemia is regarded as an independent risk factor for coronary heart disease. Homocysteine is an amino acid formed during the conversion of methionine to cysteine. Moderate elevation of homocysteine in the blood correlates to increased risk for cardiovascular disease, and susceptible individuals can be successfully treated with dietary folate.

During the year 2000, a homocysteine assay was set up by ICSM Council members Dr. Bernard Cheung and Dr. Karmin O, and reference levels for the Hong Kong Chinese population were established in a pilot study of 200 patients. Early in 2001, the assay was made available as an investigative service to cardiologists, and the uptake of the assay service has continued to increase steadily throughout 2003.

Fund Raising

The activities of the ICSM are funded through its commercial activities, such as advertising revenue associated with the Annual Scientific Meeting and assay services for cardiovascular risk factors, as well as donations, mainly from pharmaceutical companies. We aimed to increase our funding base, so as to be able to provide more funding to research projects. An advertising flyer was sent out to members of the general public in December 2001, to introduce our research work to the population of Hong Kong and to solicit donations for research funding. A number of donations were received from the public throughout 2003, and we will continue to send out updated flyers annually.

Research Collaboration

A research funding of HK\$500,000 was granted by Faculty of Medicine, HKU to support the Anti-Ageing Program jointly proposed by the ICSM and the Centre of Endocrinology and Diabetes (CED). Funding was allocated to support research projects in relation to anti-ageing.

A joint collaborative research on "Transplantation of genetically-engineered human embryonic stem cell-derived cardiomyocytes to modify cardiac excitability" between Dr. R.A. Li from the Institute of Molecular Cardiobiology at The Johns Hopkins University, and Dr. H.F. Tse from the ICSM was formally announced in December.

Research Grants awarded by the ICSM in 2003

Investigator(s)	Project Title	Award (HK\$)
Dr Li Gui Rong	Start-up fund for research	120,000???

Research grants awarded by the RGC in 2003 to members of the ICSM

Principal Investigator	Institution	Project Title	Award (HK\$)
Dr Fung Man Lung	HKU	Mechanistic role of protein S-nitrosylation pathway in cellular responses to oxygen signalling	610,800
Prof He Guo Wei	CUHK	Function of potassium channels in the coronary/pulmonary arteries during heart/lung surgery.	638,000
Dr Li Gui Rong Prof Lau Chu Pak (CI) Dr Tse Hung Fat (CI)	HKU	Ionic Channels of Mesenchymal Stem Cells from Bone Marrow and Cell Proliferation	624,000
Prof Wong Tak Ming	HKU	Ca ²⁺ homeostasis and delayed cardioprotection of preconditioning with metabolic inhibition or kappa opioid receptor agonist: role of stress inducible heat shock protein and mitochondrial KATP channel	624,000
Prof Wong Tak Ming (CI)	HKU	Delineation of the contributory role of EGF/polyamine/K ⁺ channel in gastric mucosal repair	624,000

Other research grants awarded in 2003 to members of the ICSM

Principal Investigator	Project Title	Awarding body	Award (HK\$)
Dr Cheung, Yiu Fai	CSX/NKX2.5 mutations in patients with pulmonary atresia and intact ventricular septum	HKU	58,000
Dr Cheung, Yiu Fai	Internal Teaching Development Grants	HKU	95,000
Dr Cheung, Yiu Fai	Leung Kau Kui and Run Run Shaw Research and Teaching Endowment Funds	HKU	50,000
Prof He Guo Wei	Experimental Studies of Coronary Artery Bypass Grafts, Function of Coronary Circulation and Related Clinical Studies in Cardiac Surgery	Monash University, Melbourne, Australia	
Dr Tse Hung Fat (CI)	Development of Multi-Feature Physiological Signal Classifier and Detector for Medical Diagnoses	The Innovation and Technology Fund	3,859,000

Dr Tse Hung Fat	Direct Intramyocardial Implantation of Autologous Bone Marrow Cells for Enhancement of Neovascularization in Patients with 'End-staged' Coronary Artery Disease	S.K. Yee Medical Foundation Grant	1,400,000
Dr Tse Hung Fat	Comparative evaluation of platelet and coagulation activation between transvenous cryoablation and radiofrequency ablation for pulmonary vein isolation in patients with atrial fibrillation.	HKU	47,200

Major contract research & donations in 2003 awarded to members of the ICSM

Principal Investigator

Grand Total Award (HK\$) 1,512,182

Prof Lau Chu Pak
Dr Kathy Lee
Dr Tse Hung Fat

Meeting our Targets

Aims for 2003

Our goals were to further develop our fundraising efforts in 2003, by inviting donations towards our research funding from the general public; to further increase the visibility of the ICSM, by holding press conferences to report our most interesting new findings; to bring the homocysteine assay into a state of commercial viability; and to see the award of grants and the publication of research papers attributable solely to the ICSM. All of these objectives were fully achieved during 2003. Flyers were sent out to the general public in order to introduce the ICSM and its research programmes, and to invite contributions towards our research funding, and a number of donations were received from members of the public. Press conferences were held over the course of 2003, resulting in a large number of media reports on ICSM research activities. The homocysteine assay was made available to cardiologists in Hong Kong, and is being run on a cost-recovery basis. In research, it has been our continuous effort to promote research collaboration, as far as our limited funding permits. The ICSM has also been actively seeking funding to secure new research positions. In an extremely competitive exercise for the Central Allocation, the ICSM was successful in securing resources for a post-doctoral fellow. Education has also been an important area of the focus of the Institute. We had plans to prepare materials for educational use for the doctors and general public.

Aims for 2004

Collaborations with other research groups

The ICSM brings together researchers in cardiovascular science and medicine, and actively promotes collaboration between its members. We plan to further expand our collaborative links to other groups researching in areas related to cardiovascular science and medicine. The major mortality and morbidity in the ageing population is attributable to cardiovascular disease, whilst diabetes is associated with accelerated atherosclerosis. Heart disease, peripheral vascular disease and stroke are the major causes of death in diabetic patients over the age of 50: diabetes doubles the probability of stroke and increases the probability of myocardial infarction by 3-5 times. We aim to strengthen our links with groups working on geriatric medicine and diabetes, so as to further increase our effectiveness in these areas.

Post-doctoral Fellow/Research Assistant Professor

Following the appointment of Dr. G.R. Li, who joined the Institute as a Research Assistant Professor in September 2000 for a 3-year period, the ICSM plan to seek funding for another Post-doctoral Fellow or Research Assistant Professor so as to promote research activities and collaboration in the Institute.

Service

The ICSM has been successful in making the homocysteine assay available to cardiologists in Hong Kong, and we plan to make available further diagnostic tests in the future. Educational materials are to be prepared for distribution to medical students, practitioners and general public.

ICSM Publications in 2003

Abstracts from the Seventh Annual Scientific Meeting (held in December 2003) were published as a Supplement to the December 2003 issue of the Journal of the Hong Kong College of Cardiology (Volume 11, Supplement 1).

Thomas J Stegmann	Neo-Angiogenesis for Coronary Heart Disease: Biotechnology from Bench to Bedside	A1
P Kumar	Making Sense of Hypoxia: The Physiology of Chemoreception	A1
PM Vanhoutte	Endothelial Function: from Health to Heart Failure	A1
TM Wong	Cardioprotection of Preconditioning: Mechanisms and Clinical Implications	A2
Gordon Moe	Recent Advances in the Pharmacotherapy of Heart Failure	A2
Hung-Fat Tse	Therapeutic Angiogenesis of Human Ischaemic Myocardium by Catheter-Based Intramyocardial Autologous Bone Marrow Cell Implantation	A3
Janet CL Zhang	A Newt, Super Mouse, and Broken Heart – Insights into Myocardial Regeneration	A3
Roland A Li	Transplantation of Genetically-Engineered Human Embryonic stem Cell-Derived Cardiomyocytes to Modify Cardiac Excitability	A3
Gui-Rong Li	Basis of Cardiac Arrhythmias in Heart Failure	A3
ML Fung	Responses and Adaptations to Hypoxia: Roles of Vasoactive Factors in the Carotid Body	A4
Qiang Xia, Chun-Mei Cao, Tak-Ming Wong	Preconditioning with Interleukin-2 Confers Cardioprotection Via Kappa-Opioid Receptor	A4
Michael G Irwin	Anaesthetics and Cardiac Preconditioning	A4
BMY Cheung	The Role of Drugs Blocking the Renin-Angiotensin System	A5
Chu-Pak Lau	Atrial Fibrillation in Congestive Heart Failure: Importance and Management	A5
Paul Vince	Biventricular Pacing: Do We Know Who Will Benefit?	A6
YF Cheung, TC Yung, SCF Tam, MHK Ho, AKT Chau	Novel and Traditional Cardiovascular Risk Factors in Children After Kawasaki Disease: Implications for Premature Atherosclerosis	A7
Rui Hu, Xiang-Xian Zhang, Wei-Qun Wang, Chu-Pak Lau, Hung-Fat Tse	Smoking, Homocysteine and Early Arteriolar Retinopathy	A7

LS Au, YW Kwan	Modulation by Homocysteine of the Background Non-Selective Cation Channel of Porcine Coronary Artery Smooth Muscle Cells	A7
Jie Liu, Min Jiang, Mei Zhang, Gea-Ny Tseng	Role of KCNE2 in the Function of Voltage-Gated K Channels in the Heart: Implications for Arrhythmogenic Mechanisms in Long QT6	A8
Kenneth WL Kam, JS Qi, M Chen, TM Wong	Novel Cardioprotective Protective Mechanism of Estrogen-Interaction with the β -Adrenergic Receptor	A8
SY Tsang, Xiaoqiang Yao, CM Wong, FL Chan, ZY Chen, Y Huang	Regulation of K ⁺ and Ca ²⁺ Channel Gene Expression by Chronic Treatment with Estrogen and Tamoxifen in Rat Aorta	A9
YM Lau, SSC Chim, KW Au, YW Kwan, KW Tsui, WK Liu	The Molecular Biological Evidence for β 3-Adrenoceptor Expression in Guinea-Pig Ventricles	A9
Yan Xie, Yi Zhu, Wei-Zhong Zhu, Le Chen, Zhao-Nian Zhou, Wen-Jun Yuan, Huang-Tian Yang	Contribution of Phospholamban Phosphorylation to the Cardioprotection of Intermittent Hypoxia in Ischemia-Reperfused Rat Heart	A10
Paul Chan, Ju-Chi Liu, Tzu-Hung Cheng, Jin-Jer Chen	Molecular Mechanism of the Inhibitory Effect of Trilinolein on Endothelin-1-Induced Hypertrophy of Cultured Neonatal Rat Cardiomyocytes	A10
YC Xu, SWS Leung, RYK Man	Kaempferol: a Flavonoid from Traditional Chinese Medicine, Potentiates Endothelium-Dependent and Independent Relaxation	A11
XM Zhang, JD Huang	KhcU Gene Knockout Mice Using Embryonic Stem Cells and Potential Application in Cardiovascular Study	A11
JCW Wong, KWH Lai, KSE Cheah, CP Lau, JCL Zhang, HF Tse	Localization of Murine Embryonic Stem Cells at the Area of Myocardial Infarction in Mice Heart	A11
KA Seema, LS Au, YW Kwan, AM Gurney	Modulation by Acetylcholine of High-Conductance Calcium-Activated Potassium Channels of Pulmonary Artery Smooth Muscle Cell of the Wistar-Kyoto and Spontaneously Hypertensive Rats	A12
Hung-Yu Yang, Kar-Lok Wong, Ju-Chi Liu, Paul Chan, Tz-Hung Cheng	Isosteviol as a Potassium Channel Opener to Lower Intracellular Calcium Concentrations in Cultured Aortic Smooth Muscle Cells	A12
Jie Tu, Zhi-Min Di, Qi-Xian Shan, Li-Ping Wu, Hong-Feng Jin, Qiang Xia	Lipopolysaccharide Induced Coronary Vasoconstriction By Increasing Plasma Endothelin-1 Concentrations	A12
Hui Yao, Yi Qian, Chun-Mei Cao, Hong-Feng Jin, Qi-Xian Shan, Qiang Xia	Chronic Treatment of Interferon-Alpha Reduced the Endothelium-Dependent Relaxation of Rat Thoracic Aorta	A13
W Keung, RYK Man	Non-Genomic Effect of 17β -Estradiol on Vascular Contraction in Rat Mesenteric Arteries	A13

Hui-Ping Wang, Fu-Yu Qiu, Cheng Chen, Qiang Xia, Meng-Hui Zhao, Yuan Lu	Effect of Plant-Derived Estrogen, Biochanin A, on the Tension of Rat Aortic Rings	A13
Lao Yi Yun, Wu Wodong, Xu Yunhong, Tan Peiyi, Chen Ximing, Liao Zida, Yang Junqing	The Study of Chinese Traditional Medicine Used to Improve the Fibrinolytic Status Represented with PAI-1/D-dimer in Acute Myocardial Infarction Patients Complicated with Type II Diabetes Mellitus	A14
Yi-Jen Chen, Yao-Chang Chen, Paul Chan, Cheng-I Lin, Shih-Ann Chen	Effect of Nitric Oxide on Pulmonary Vein Arrhythmogenic Activity	A14
Z Gao, CP Lau, SW Chiu, GR Li	Effects of Verapamil on Transient Outward and Ultra-Rapid Delayed Rectifier Potassium Currents in Human Atrial Myocytes	A14
Guo-Hua Lin, Fang-Fang Yang, Lin-Lin Wang, Chun-Mei Cao, Qiang Xia	Modulation of Interleukin-2 on the Positive Effect of Isoproterenol in the Isolated Myocardium	A15
M Chen, JJ Zhou, KWL Kam, JS Qi, WY Yan, S Wu, TM Wong	ATP-sensitive K ⁺ Channels Are Involved in U50, 488H-Preconditioning Induced Delayed Cardioprotection and Ca ²⁺ Homeostasis Changes in Rat Hearts	A15
Ye Zhang, Michael G Irwin, Tak-Ming Wong	Pretreatment with Remifentanyl Reduces Myocardial Infarct Induced by Ischaemia and Reperfusion in Anaesthetized Rats	A16
J Liu, TM Wong	The Relationship between Heat Shock Protein 70 and Cytosolic Calcium in Delayed Cardioprotection of Preconditioning	A16
Louisa Wong, Bernard Cheung, Carol Li, Fai Tang	Adrenomedullin Suppresses MIF Production and Cytokine Response of Rat Macrophages to Lipopolysaccharide	A17
Leonard Tam, HJ Ballard	Nitric Oxide Release in the Renal Circulation of Normoxia- or Hypoxia-Adapted Rats in Response to Acute Local Hypoxia	A17
Jun-Ping Kang, Xin Du, Zhi-Hong Han, Shao-Ping Nie, Xiao-Hui Liu, Chang-Sheng Ma	Prognosis and Predictive Factors of Decompensated Heart Failure	A18
BMY Cheung, TH Lam, KSL Lam, SCF Tam, NMW Wat, JLF Lo, DFY Chau, CY Law, YB Man, CH Cheng, CR Kumana, CP Lau	Follow Up of the Hong Kong Cardiovascular Risk Factor Prevalence Survey Cohort	A18
Lian Qizhou, S Thameem Dheen, Tay Sam-Wah Samuel	Enhanced Apoptosis of Embryonic Neural Stem Cells Exposed to Diabetic Environment is Linked to Diabetes-Induced Expression of Inflammatory Genes	A18
Hong-Feng Jin, Qin Gao, Guo-Dong Wu, Jie Tu, Hui-Di Jiang, Qiang Xia	Total Flavones from <i>Dendranthema Morifolium</i> Reduced Intracellular Calcium Levels in Ecv304 Cells	A19

CH Ng, RY Chen, Y Huang, ZY Chen	Role of Endothelial Nitric Oxide in Vasorelaxant Effects of Active Ingredients of Chinese Herbal Plants in Rat Aorta	A19
W Keung, RYK Man	Non-Genomic Effect of 17 β -Estradiol in Rat Mesenteric Arteries is Endothelium-Dependent and Involves the Cyclic AMP Cascade	A19
YC Chan, Xiaoqiang Yao, CL Liu, PM Vanhoutte, Y Huang	Raloxifene Dilates Rat Pressurized Mesenteric Arteries: Role of Endothelium	A19
CM Wong, CL Au, Xiaoqiang Yao, SY Tsang, CW Lau, Y Huang	Role of Endothelium-independent Nitric Oxide in Raloxifene-induced Aortic Relaxation	A20
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SSC Wong, S Wu, TM Wong	Effects of Testosterone on Intracellular Ca ²⁺ Homeostasis and its Responses to β -Adrenoceptor Stimulation in Gonadectomy and Male Rat Ventricular Myocytes	A20
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