

# Vascular Biology 2011

The 5<sup>th</sup> International Vascular Biology Research Symposium

was held on January 15, 2011

at China Medical University, Taichung, Taiwan

## Have you heard about us?

### Why is Vascular Biology?

Considerable global attention has been made to study in a systematic way the structure and functional correlates of blood vessel with a long-range objective to better understand the control mechanisms of vascular tissue which are relevant to the effective management and treatment of cardiovascular diseases in our economically affluent society, including the current Taiwan society. Rapid development in basic science research in vascular biology (including studies on vascular smooth muscle cells, endothelial cells, vascular innervation, and more recently on perivascular fibroblasts and adipocytes) has led to rational and effective treatment of cardiovascular diseases, such as **hypertension, diabetes mellitus, stroke and atherosclerosis**. Typically, the better understanding of the role of calcium ions on vascular smooth muscle and cardiac muscle function in the 1970s has led to the development of **calcium antagonists** as antihypertensive and anti-arrhythmic drugs. Vascular endothelium has been regarded for decades as an inert organ separating vascular smooth muscles from the blood milieu. However, the discovery of endothelium as an active paracrine organ in the fine regulation of nitric oxide (NO)-mediated vasodilatation in 1980s resulted in NO being the molecular of the year in 1996 and **Nobel Prize** was awarded to three vascular biologists to honor the discover of NO. Excessive generation of NO through cytokine-induced activation of its inducible enzyme, nitric oxide synthase, has also been linked to endotoxic shock. In recent years, other seemingly inert vascular cellular cell constituents, such as fibroblasts and adipocytes are also gaining special attention as a novel trend of vascular research. In fact, these cells are also implicated in the oxidative stress (tissue damage as a result of excessive formation of reactive oxygen species (ROS), such as superoxide anion as the primary ROS, which may also contribute to the etiology of hypertension.

### Why in Taiwan?

Death from all these cardiovascular diseases have been the number one cause of death at the global level and it has recently even superseded the mortality and morbidity of cancer in Taiwan. The aging society, generally poor dietary control of the public, physically dormant life style, lacking exercise and work-related stress have collectively contributed to various forms of cardiovascular diseases in Taiwan, like in many other developed countries. For example, metabolic syndrome and obesity are convincingly linked to vascular complications and become an increasingly active area of vascular research in Japan and North America, this aspect of research is currently rather merger in Taiwan. Therefore, organizing an international symposium would be timely and important to stimulate more attention in vascular research in Taiwan. In fact, the chief coordinator of this Vascular Biology Symposium series, Prof. David CY Kwan, was a member of the Canadian Hypertension Society and the national recipient of that Society's prestigious Young Investigator Award in 1987. He helped established the Institute of Cardiovascular Sciences and Medicine in 1996 when he was the Chair Professor of Physiology at the University of Hong Kong. He is also a member of the Asia Group of Vascular Biology as well as the International Society of Vascular Biology. This nature of scientific society on basic vascular biology is functionally non-existent in Taiwan and needs to be cultivated. Therefore, this meeting is held in Taiwan to put vascular biologists in Taiwan together to promote better exchange of ideas and interact with those from Canada, USA, Japan, Hong Kong, Malaysia and Singapore.

### Why at China Medical University?

China Medical University Hospital has recently established a Cardiovascular team and a Stroke Center. The emphasis has been in the clinical aspects of cardiovascular and cerebral vascular diseases. The basic science counterpart remains relatively thin and needs a leadership boost to better promote education and training between basic science researchers and clinical scientists. The establishment of a Vascular Biology Research Group, originally suggested by President Jongtsun Huang to be established as a virtual center within the School of Medicine. Prof. Kwan has take further initiative to make it a more inclusive multi-disciplinary group across the entire university. Although not recognized as a formal research Institute with designated funding, curriculum and organization structure, this informal Vascular Research Group has made considerable scientific achievement and international visibility via the annual international symposium as well as its regular bi-monthly meetings as a platform for scientific exchange.

For each symposium, we have a good blending of the domestic and foreign speakers, representing a young generation of vascular biologists from Japan, Hong Kong, China, Malaysia, Singapore, Canada, USA, Austria as well as other institutes in Taiwan. They all publish in highly respected journals and serves important academic positions in their respective countries. The topics of the symposium lectures cover areas spanning from basic sciences to clinical applications as described in the earlier section. Most of the topics are of current state-of-art issues in vascular biology covering physiology, pharmacology, Chinese herbal medicine, molecular biology and from cell to patients.

While it is not practical to send many students and faculties to scientific meetings in foreign countries each year (although the university has been

doing so to bring up the general awareness of our need for internationalization in both research and education), we have brought in an international symposia every year into our campus. Not only that our research students and teachers would have the opportunity to appreciate not only the wisdom of science, but also the art of communication and presentation in English. As part of the ongoing effort for internationalizing ourselves, it is also important to allow foreign visitors to appreciate the rapid progress and achievement of Chins Medical University in recent years.

## Anticipated outcome

In its onset some years ago, we anticipated that this symposium would broaden the perspectives in the topical areas of vascular biology, to stimulate better cooperation in vascular research within Taiwan and promote better interaction with vascular scientists at the global level. We also anticipated that this symposium would result in future exchange of graduate research students and faculties between vascular research centers in Taiwan and other countries. The above anticipated outcome is highly feasible and beyond language and cultural barrier, as many of the invited foreign speakers are also of Chinese ethnic origin, thus making future exchange interactions relatively easier and convenient. Indeed, via this venue, our university has successfully engaged in signing academic collaborative agreement with a number of universities, such as the University of Toronto, Brock University, Medical University of Graz, and University of Malaya. We hope that Vascular Biology Research Group, a virtual research group across the boundaries of academic departments and research institutes, set a good role model for teachers and student scientists across the campus to be internally motivated, self-directed and team-oriented.

## Interested in joining us?

Are you doing research involving blood vessel as part of the organ system, such as in heart, endothelium growth and damage or vascular innervation? Are you interested in cardiovascular or cerebral vascular diseases, such as hypertension, stroke, and metabolic syndrome? You need not be a vascular biologist, you can be an anatomist, biochemists, molecular biologists, physiologist, pharmacologist, immunologist, neuroscientist, cardiac surgeon or cancer research. You are free to join us. Please contact: Mr. Kuntui Huang, Center of Faculty Development for details. Tel: (4) 2205 3366 ext 1622 or [kuntui@mail.cmu.edu.tw](mailto:kuntui@mail.cmu.edu.tw)

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