

## Editorial

# Frontiers of vascular biology and disease research

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2010 represents a special year for Acta Pharmacologica Sinica, the 30th anniversary of its debut as an international journal. On this memorable occasion, the journal and its guest editors are proud to present to our readers a special issue in vascular biology and disease research. The research work presented herewith spans from molecular cardiovascular biology to integrated physiology and pharmacology.

Vascular biology encompasses processes affecting the heart, circulation, and blood vessels including arteries (both large conduit and small resistance vessels), veins, and capillaries. This complex system regulates a variety of physiological functions, including development and regeneration, immune response, transportation of blood fluid containing vital nutrients, gases, proteins and numerous other molecules. Vascular tissue as a whole encapsulates a diverse population of cell types, including endothelial cells, smooth muscle cells, pericytes, fibroblasts, residential stem cells and connective tissue cell types. Accordingly, vascular biology research is at the forefront of biomedical research, which covers the investigation of cellular and integrated vascular function under both normal and pathological conditions. This area of research is of vital importance to human health because vascular diseases such as atherosclerosis, diabetes, hypertension and stroke have become the leading cause of morbidity and mortality in the modern world.

To accelerate progress into cardiovascular disease prevention and treatment, we must expand our knowledge more into the basic regulatory mechanisms and molecular pathways underlying the complexities of vascular biology and pathobiology. To this end, this special issue aims to highlight several areas of current vascular biology research for a better understanding of the complex nature of vascular pathophysiology. As guest editors, we have included 4 state-

of-the-art reviews<sup>[1–4]</sup> and 17 original investigations in the areas of endothelial dysfunction<sup>[5, 6]</sup>, hypertension<sup>[7–11]</sup>, atherosclerosis<sup>[12–16]</sup>, genetics<sup>[17]</sup> and proteomics<sup>[18]</sup>, and herbal medicine<sup>[19–21]</sup>. We are delighted to report that the authors in this special issue have covered the breadth of vascular biology, encompassing endothelial and smooth muscle dysfunction, perivascular cell signaling, vascular biomechanics, matrix biology and remodeling, inflammation, lipid metabolisms, and hypertension. Of particular note, a wide spectrum of *in vitro* and *in vivo* approaches, including biochemical, pharmacological and molecular biology disciplines have been utilized in these investigations. As vascular biology is a rapidly advancing area of research, with many new and emerging pathophysiological links to an increasing number of diseases, there is no doubt that such multidisciplinary approaches will be increasingly needed in integrative biomedical research down the road, in order to ensure the translation of knowledge from basic science to clinical arena.

Vascular diseases result from a complex mixture of genetic and environmental factors. Thus, there is an acute need to integrate the knowledge in all areas of vascular biology and cross-disciplinary research. As a premier journal that covers all modern aspects of biomedical science, we anticipate that Acta Pharmacologica Sinica will expand its coverage and expertise in other areas of vascular biology research, including enhanced focus on integrative and regenerative vascular medicine, progresses of which are essential for the translation of new knowledge from bench to the bedside.

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