

# Thursday, September 24

8:15-8:45 **Opening Address**

8:50 **Research Symposia**

9:30 **Special Lecture**

**Paul M. Vanhoutte** *Hong Kong, China*

**Hiroaki Shimokawa** *Sendai, Japan*

Chaired by **Masato Tsutsui** *Okinawa, Japan*

**Masami Goto** *Okayama, Japan*

11:30 **Luncheon Seminar**

12:25 **Research Symposia**

14:05 **Special Lecture**

**Hiroaki Shimokawa** *Sendai, Japan*

Chaired by **Ed van Bavel** *Amsterdam, The Netherlands*

14:30 **Research Symposia**

15:15 **Research Symposia**

16:30 **Research Symposia**

16:55 **Research Symposia**

# Sunday, September 27

8:30 **Research Symposia**

10:05 **Research Symposia**

The 40<sup>th</sup> Annual Meeting of Japanese Society for Microcirculation Satellite Symposium

Thursday, September 24 Room D

8:15 - 8:45 Opening Address

8:50 - 11:20 Satellite Symposium 1

Molecular mechanisms in lymphatic function & lymphangiogenesis

Chairs: Toshio Ohhashi (Shinshu University School of Medicine, Japan)

Masataka Majima (Department of Pharmacology, Kitasato University School of Medicine, Japan and Department of Molecular Pharmacology, Graduate School of Medicine, Japan)

Satellite

SS1-1 Angiogenesis and lymphangiogenesis in cancer metastasis

Yuhai Cao

Department of Microbiology, Tumor and Cell Biology, Karolinska Institute, Sweden

SS1-2 Organotypic lymphatic vessels: Lacteal and Schlemm's canal

Gou Young Koh

Graduate School of Medical Science and Engineering, KAIST, Daejeon, Korea

SS1-3 Roles of prostaglandins in regulation of plasticity of lymphatics and lymph nodes

Masataka Majima, Kanako Hosono, Hideki Amano

Department of Pharmacology, Kitasato University School of Medicine, Japan and Department of Molecular Pharmacology, Graduate School of Medicine, Japan

SS1-4 New lymphology combined with cardiovascular physiology, innate immunology, and oncology

Yoshiko Kawai<sup>1,2)</sup>, Toshio Ohhashi<sup>2)</sup>

<sup>1)</sup>Department of Physiology, Shinshu University School of Medicine, Matsumoto, Japan, <sup>2)</sup>Department of Innovation of Medical and Health Sciences Research, Shinshu University School of Medicine, Japan

SS1-5 Semaphorin3G provides a repulsive guidance cue from arteries to PlexinD1<sup>+</sup> lymphatic endothelial cells in the mouse embryonic skin

Masanori Hirashima

Division of Vascular Biology, Department of Physiology and Cell Biology, Kobe University Graduate School of Medicine, Kobe, Japan

11:30 - 12:15 Luncheon Seminar 1

Chair: Norio Tanahashi (Saitama Medical University International Medical Center, Japan)

LS1 New prospects of Non-vitamin K antagonist oral anticoagulants in the patients with atrial fibrillation: From the view of clinical question

Koichi Oki

Department of Neurology, Keio University School of Medicine, Japan

Sponsored by Bristol-Myers K.K./Pfizer Japan Inc.

12:25 - 13:55 **Satellite Symposium 2**

**A key cardiovascular signaling molecule in cardiovascular disease**

Chairs: Toyotaka Yada (Department of Medical Engineering, Kawasaki Medical School and  
Kawasaki University of Medical Welfare, Kurashiki, Japan)

Paul M. Vanhoutte (State Key Laboratory of Pharmaceutical Biotechnology &  
Department of Pharmacology & Pharmacy, Li Ka Shing Faculty of  
Medicine, the University of Hong Kong, China)

**SS2-1 Role of cyclophilin A in cardiovascular system**

Kimio Satoh

Department of Cardiovascular Medicine, Tohoku University Graduate School of Medicine, Sendai,  
Japan

**SS2-2 Vascular adrenomedullin-RAMP2 system is essential for vascular integrity and  
organ homeostasis**

Takayuki Shindo

Department of Cardiovascular Research, Shinshu University Graduate School of Medicine, Japan

**SS2-3 Role of the endogenous and exogenous NO production systems in the  
pathogenesis of cardiovascular and metabolic diseases**

Masato Tsutsui<sup>1)</sup>, Hiroaki Shimokawa<sup>2)</sup>, Nobuyuki Yanagihara<sup>3)</sup>, Yutaka Otsuji<sup>4)</sup>

<sup>1)</sup>Department of Pharmacology, Graduate School of Medicine, University of the Ryukyus, Okinawa,  
Japan, <sup>2)</sup>Department of Cardiovascular Medicine, Tohoku University Graduate School of Medicine,  
Sendai, Japan, <sup>3)</sup>Department of Pharmacology, School of Medicine, University of Occupational and  
Environmental Health, Kitakyushu, Japan, <sup>4)</sup>Second Department of Internal Medicine, School of  
Medicine, University of Occupational and Environmental Health, Kitakyushu, Japan

**SS2-4 When NO becomes ugly and causes vasospasm**

Paul M. Vanhoutte

State Key Laboratory of Pharmaceutical Biotechnology & Department of Pharmacology & Pharmacy,  
Li Ka Shing Faculty of Medicine, the University of Hong Kong, China

14:05 - 15:05 **Special Lecture 1**

Chair: Ed van Bavel (Department of Biomedical Engineering and Physics, Academic Medical  
Center, Amsterdam, The Netherlands)

**SL1 Diverse functions of endothelial NO synthases system: NO and EDH**

Hiroaki Shimokawa

Tohoku University Graduate School of Medicine, Sendai, Japan

15:15 - 16:45 **Satellite Symposium 3**

**The mechanosensor for shear stress and its role on the cerebral aneurysm formation: from the basic science to clinical research**

Chairs: Shunichi Fukuda (Department of Neurosurgery, National Hospital Organization, Kyoto Medical Center, Kyoto, Japan)

Joji Ando (Dokkyo Medical University, Japan)

**SS3-1 Mechanotransduction and its failure in the metabolic syndrome due to proteolytic receptor cleavage**

Geert W. Schmid-Schonbein

Bioengineering Department, University of California, San Diego, USA

**SS3-2 Endothelial cell plasma membrane acts as a mechanosensor that detects fluid shear stress**

Kimiko Yamamoto<sup>1)</sup>, Joji Ando<sup>2)</sup>

<sup>1)</sup>Laboratory of Systems Physiology, University of Tokyo, Tokyo, Japan, <sup>2)</sup>Laboratory of Biomedical Engineering, Dokkyo Medical University, Tochigi, Japan

**SS3-3 A role of hemodynamic stress on the cerebral aneurysm formation: A series of studies using an animal model of experimentally induced cerebral aneurysms**

Shunichi Fukuda

Department of Neurosurgery, National Hospital Organization, Kyoto Medical Center, Kyoto, Japan

**SS3-4 Computational fluid dynamics for simulating the blood flow in arteries: Its applications to hemodynamic analyses of the cerebral aneurysm formation**

Yuji Shimogonya<sup>1)</sup>, Shunichi Fukuda<sup>2)</sup>

<sup>1)</sup>Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan,

<sup>2)</sup>Department of Neurosurgery, National Hospital Organization Kyoto Medical Center, Kyoto, Japan

16:55 - 18:25 **Satellite Symposium 4**

**New aspects in interrelations between microlympho- and microhaemovasculture- relevance to fluid retention mechanism**

Chairs: Masaya Oda (International University of Health & Welfare, Japan)

Anatoliy A. Gashev (Department of Medical Physiology, College of Medicine, Texas A&M University Health Science Center, USA)

**SS4-1 The dynamics of albumin leakage from mesenteric venules and reflux from collateral lymphatic vessel after superior mesenteric vein constriction**

Jing-Yan Han<sup>1,2)</sup>, Ming-Xia Wang<sup>2)</sup>, Yu-Ying Liu<sup>2)</sup>, Quan Li<sup>2)</sup>, Ke He<sup>2)</sup>, Jing-Yu Fan<sup>2)</sup>

<sup>1)</sup>Department of Integration of Traditional Chinese and Western Medicine, School of Basic Medical Sciences, Peking University, Beijing, China, <sup>2)</sup>Tasly Microcirculation Research Center, Peking University Health Science Center, Beijing, China

**SS4-2 Histamine as an endothelium-derived relaxing factor in mesenteric lymphatic vessels of various ages**

Anatoliy A. Gashev<sup>1)</sup>, Irina Tsoy Nizamutdinova<sup>1)</sup>, Daisuke Maejima<sup>1,2)</sup>,

Takashi Nagai<sup>1,2)</sup>, Eric A. Bridenbaugh<sup>1)</sup>, Sangeetha Thangaswamy<sup>1)</sup>,

Victor Chatterjee<sup>1)</sup>, Cynthia J. Meininger<sup>1)</sup>

<sup>1)</sup>Department of Medical Physiology, College of Medicine, Texas A&M University Health Science Center, USA, <sup>2)</sup>Department of Physiology, Shinshu University School of Medicine, Matsumoto, Japan

SS4-3 **New aspects on lymphatic-like structures in human choroid and retina: Relevance to fluid clearance and immune privilege in the posterior eye**

Tailoi Chan-Ling<sup>1)</sup>, Louise C. Baxter<sup>1)</sup>, Frank Arfuso<sup>1,2)</sup>, Samuel J. Adamson<sup>1)</sup>,  
Ping Hu<sup>3)</sup>, Michele C. Madigan<sup>4,5)</sup>, Mark E. Koina<sup>1,6)</sup>

<sup>1)</sup>Discipline of Anatomy & Histology, Sydney Medical School, Bosch Institute, The University of Sydney, Sydney, Australia. <sup>2)</sup>School of Anatomy, Physiology and Human Biology, Faculty of Science, The University of Western Australia, Crawley, Western Australia, Australia. <sup>3)</sup>Department of Ophthalmology, Eugene & Marilyn Glick Eye Institute, Indiana University, Indianapolis, IN, USA. <sup>4)</sup>School of Optometry, University of New South Wales, New South Wales, Australia. <sup>5)</sup>Save Sight Institute, The University of Sydney, New South Wales, Australia. <sup>6)</sup>Department of Anatomical Pathology, ACT Pathology, The Canberra Hospital, Garran, Australian Capital Territory, Australia

SS4-4 **Immunohistochemical re-evaluation of interrelation between microlympho- and microhemovasculature in normal and cirrhotic human liver: Relevance to ascites formation**

Hiroaki Yokomori<sup>1)</sup>, Masaya Oda<sup>2,3)</sup>

<sup>1)</sup>Department of Internal Medicine, Kitasato University Medical Center, Saitama, Japan. <sup>2)</sup>Organized Center of Clinical Medicine, International University of Health and Welfare, Japan. <sup>3)</sup>Department of Internal Medicine, Sanno Medical Center, Tokyo, Japan

Thursday, September 24 Room C-1

9:30 - 11:00

**Special Lecture 2**

Chairs: Masato Tsutsui (Department of Pharmacology, Graduate School of Medicine, University of the Ryukyus, Okinawa, Japan)

Masami Goto (Kawasaki University of Medical Welfare, Japan)

SL2-1 **Endothelial dysfunction: Regenerate to be old**

Paul M. Vanhoutte

State Key Laboratory of Pharmaceutical Biotechnology & Department of Pharmacology & Pharmacy, Li Ka Shing Faculty of Medicine, the University of Hong Kong, China

SL2-2 **Importance of coronary microvascular dysfunction**

Hiroaki Shimokawa

Tohoku University Graduate School of Medicine, Sendai, Japan

12:25 - 13:55

**Satellite Symposium 5**

**Cutting edge of ocular microcirculation research**

Chairs: Yuichiro Ogura (Nagoya City University Graduate School of Medical Sciences, Japan)

Akitoshi Yoshida (Asahikawa Medical University, Japan)

SS5-1 **Mechanisms of the neurovascular coupling in the retina: Role of neuronal nitric oxide synthase and glial cells in regulating retinal blood flow during flicker-induced hyperemia in cats**

Taiji Nagaoka

Department of Ophthalmology, Asahikawa Medical University, Japan

SS5-2 **Novel evaluation of diabetic eyes by using En Face OCT angiography**

Miho Nozaki

Department of Ophthalmology & Visual Science, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan

**The 40<sup>th</sup> Annual Meeting of Japanese Society  
for Microcirculation Satellite Symposium**

- SS5-3 **OCT angiography of the retinal circulation**  
David Huang  
Casey Eye Institute, Oregon Health & Science University, Portland, OR, USA
- SS5-4 **Measurement of retinal oxygen extraction in humans**  
Leopold Schmetterer  
Center of Medical Physics and Biomedical Engineering and Department of Clinical Pharmacology,  
Medical University of Vienna, Vienna, Austria

**14:30 - 16:20 Satellite Symposium 6**

**Activate blood and remove stasis**

Chairs: Gerald A. Meininger (University of Missouri, USA)  
Akos Koller (University of Physical Education, Budapest, Hungary)

**Satellite**

- SS6-1 **Regulation of hydroxysafflor yellow A (HSYA) in angiogenesis**  
Jianbo Wu, Liqun Wang, Ningbo Pang, Yongjie Li, Ni Chen, Namei Xiao, Yan Yang  
Drug Discovery Research Center, Luzhou Medical College, Luzhou, China
- SS6-2 **A metabolite of danshen formulae, IDHP, attenuates beta-adrenergic receptor mediated cardiac fibrosis depending on NOX2/ROS/p38 pathway**  
Zijian Li  
Institute of Vascular Medicine, Peking University Third Hospital, Beijing, China
- SS6-3 **Regulation of cerebral blood flow by hemodynamic forces: Maintenance of healthy flow**  
Akos Koller  
University of Physical Education, Budapest, Hungary
- SS6-4 **Targeting AMPK: A new strategy for enhancing HDL function**  
Ang Ma, Linzhang Huang, Haibo Zhu  
State Key Laboratory for Bioactive Substances and Functions of Natural Medicines, China
- SS6-5 **Innovative therapeutics of activating Qi and nourish blood in treating cancer diseases via regulating immune system**  
Xiaodong Cheng<sup>1,2)</sup>, Jinyin Wang<sup>2)</sup>, Hui Jin<sup>1)</sup>, Shuiying Wang<sup>2)</sup>  
<sup>1)</sup>School of Life Sciences and Technology, Tongji University, and Yue-yang Hospital, SHUTCM, China,  
<sup>2)</sup>Yue-yang Hospital, SHUTCM, China
- SS6-6 **Chemoprevention of lung cancer by using chinese herbs: An update review**  
Zhongqiu Liu, Linlin Lu, Yuting Liu, Yunli Tong, Ying Wang, Xiaoxiao Qi, Lijun Zhu  
International Institute for Translational Chinese Medicine, China

16:30 - 18:20 Satellite Symposium 7

**Mechanisms of microvascular dysfunction under disease conditions  
and therapeutic developments**

Chairs: Ping Nian He (Department of Cellular and Molecular Physiology, The Pennsylvania State  
University College of Medicine, USA)

Masato Yasui (Keio University School of Medicine, Tokyo, Japan)

**SS7-1 Roles of increased circulating microparticles in diabetes-associated microvascular  
dysfunction**

Ping Nian He

Department of Cellular and Molecular Physiology, The Pennsylvania State University College of  
Medicine, USA

**SS7-2 Aquaporins in brain disorders**

Masato Yasui

Keio University School of Medicine, Tokyo, Japan

**SS7-3 Peroxynitrite could be a molecular target for drug discovery to prevent  
thrombolysis-induced hemorrhagic transformation in post-stroke treatment**

Jiangang Shen<sup>1)</sup>, Hansen Chen<sup>1)</sup>, Xingmiao Chen<sup>1)</sup>, Jinghan Feng<sup>1)</sup>, Su-Hua Qi<sup>2)</sup>

<sup>1)</sup>School of Chinese Medicine, the University of Hong Kong, Hong Kong, China, <sup>2)</sup>Research Center for  
Biochemistry and Molecular Biology and Provincial Key Laboratory of Brain Disease Bioinformation,  
Xuzhou Medical College, Xuzhou, China

**SS7-4 Salvianolic acid B ameliorates albumin leakage from mesenteric venules induced  
by lipopolysaccharide in rats**

Chun-Shui Pan<sup>1)</sup>, Yu-Ying Liu<sup>1)</sup>, Yu Zhang<sup>1)</sup>, Ke He<sup>1)</sup>, Xiao-Yuan Yang<sup>1)</sup>, Bai-He Hu<sup>1)</sup>,  
Xin Chang<sup>1)</sup>, Ming-Xia Wang<sup>1)</sup>, Xiao-Hong Wei<sup>1)</sup>, Jing-Yu Fan<sup>1)</sup>, Jing-Yan Han<sup>1,2)</sup>

<sup>1)</sup>Tasly Microcirculation Research Center, Peking University Health Science Center, Beijing, China,  
<sup>2)</sup>Department of Integration of Traditional Chinese and Western Medicine, School of Basic Medical  
Sciences, Peking University, Beijing, China

**SS7-5 Three dimensional modeling of the endothelial vesicular system with electron  
tomography**

Roger Wagner<sup>1)</sup>, Shannon Modla<sup>1)</sup>, Fred Hossler<sup>2)</sup>

<sup>1)</sup>Department of Biological Sciences, University of Delaware, Newark, DE, USA, <sup>2)</sup>East Tennessee State  
University College of Medicine, Johnson City, TN, USA

Satellite

Sunday, September 27 Room C-1

8:30 - 10:00 Satellite Symposium 8

Qi drive blood

Chairs: Geert W. Schmid-Schonbein (Bioengineering Department, University of California, San Diego, USA)

Jing-Yan Han (Department of Integration of Traditional Chinese and Western Medicine, School of Basic Medical Sciences, Peking University, Beijing, China)

SS8-1 Effects and mechanism of QiShenYiQi pills attenuating rat cardiac injury induced by ischemia/reperfusion

Jing-Yan Han<sup>1,2)</sup>

<sup>1)</sup>Department of Integration of Traditional Chinese and Western Medicine, School of Basic Medical Sciences, Peking University, Beijing, China. <sup>2)</sup>Tasly Microcirculation Research Center, Peking University Health Science Center, Beijing, China

SS8-2 Qi, blood and biomechanopharmacology

Fulong Liao<sup>1,2)</sup> and Dong Han<sup>1)</sup>

<sup>1)</sup>National Center for Nanoscience and Technology, Beijing, China. <sup>2)</sup>Institute of Chinese Materia Medica, China Academy of Chinese Medical Sciences, Beijing, China

SS8-3 CNS lymphatic drainage blockade exacerbates cerebral vasospasm and cerebral injury following subarachnoid hemorrhage and partially reversed by Ginkgo biloba extract

Bao-liang Sun<sup>1,2)</sup>, Xuan Wang<sup>1,2)</sup>, Li Jia<sup>1,2)</sup>, Li-li Jia<sup>1,2)</sup>, Xi-chang Liu<sup>1,2)</sup>, Zi-cui Cheng<sup>1,2)</sup>, Ming-feng Yang<sup>1,2)</sup>, Cheng-bi Zheng<sup>3)</sup>, Lei-lei Mao<sup>1,2)</sup>, Cun-dong Fan<sup>1,2)</sup>, Zong-yong Zhang<sup>1,2)</sup>, Da-wei Li<sup>1,2)</sup>, Xiao-yi Yang<sup>1,2)</sup>

<sup>1)</sup>Department of Neurology, Affiliated Hospital, Taishan Medical University, Shandong, China. <sup>2)</sup>Key Lab of Cerebral Microcirculation in Universities of Shandong (Taishan Medical University), Shandong, China. <sup>3)</sup>Taishan Medical University, Shandong, China

SS8-4 Target identification of curcumin on ischemic blood flow and anticancer activities by network analysis and biological approaches

Xue-Jun Li

Department of Pharmacology, School of Basic Medical Sciences, Peking University, Beijing, China

10:05 - 11:35 Satellite Symposium 9

Qi retaining body fluid and blood

Chairs: Qiao-bin Huang (Department of Pathophysiology, Key Lab for Shock and Microcirculation Research, Southern Medical University, Guangzhou, China)

Jerome W. Breslin (University of South Florida, Tampa, FL, USA)

SS9-1 Moesin phosphorylation in T558 is involved in angiogenesis induced by advanced glycation end products

Qiao-bin Huang<sup>1)</sup>, Qian Wang<sup>1)</sup>, Xiao-hua Guo<sup>1)</sup>, Ai-hui Fan<sup>2)</sup>, Yong-jun Yuan<sup>1)</sup>, Xiao-yan Zhou<sup>1)</sup>, Xu-liang Huang<sup>1)</sup>

<sup>1)</sup>Department of Pathophysiology, Key Lab for Shock and Microcirculation Research, Southern Medical University, Guangzhou, China. <sup>2)</sup>Department of Physiology, Guangdong Medical College, Dongguan, China



- SS9-2 Shear stress and microvessel permeability**  
Ping Nian He  
Department of Cellular and Molecular Physiology, The Pennsylvania State University College of  
Medicine, USA
- SS9-3 Catolpol attenuates hemorrhage from rat mesenteric microvessels exposed to  
lipopolysaccharide**  
Yun-Pei Zhang<sup>1,2)</sup>, Chun-Shui Pan<sup>1)</sup>, Yu-Ying Liu<sup>1)</sup>, Bai-He Hu<sup>1)</sup>, Xin Chang<sup>1)</sup>, Yan Li<sup>1)</sup>,  
Quan Li<sup>1)</sup>, Kai Sun<sup>1)</sup>, Jing-Yu Fan<sup>1)</sup>, Jing-Yan Han<sup>1,2)</sup>  
<sup>1)</sup>Tasly Microcirculation Research Center, Peking University Health Science Center, Beijing, China,  
<sup>2)</sup>Department of Integration of Traditional Chinese and Western Medicine, School of Basic Medical  
Sciences, Peking University, Beijing, China
- SS9-4 New strategies to reduce microvascular hyperpermeability, edema, and  
hypotension in the intoxicated or injured host**  
Jerome W. Breslin, Travis Doggett, Xun Zhang, Shaquria P. Adderley,  
Natascha Alves, Andrea Trujillo, Sara Spampinato, Srinivas Tipparaju  
University of South Florida, Tampa, FL, USA