

Title: Post-genomic Advances in the Physiology of Smooth Muscle

Organizers: President

Hikaru Suzuki (Nagoya City University, Graduate School of Medical Sciences, Nagoya, Japan)

Members

David J. Beech (University of Leeds, School of Biomedicine, Leeds, UK)

Christopher J. Garland (University of Oxford, Oxford, UK)

Yuji Imaizumi (Nagoya City University, Graduate School of Pharmaceutical Sciences, Nagoya, Japan)

Ryuji Inoue (Fukuoka University, Faculty of Medicine, Fukuoka, Japan)

Takeo Itoh (Nagoya City University, Graduate School of Medical Sciences, Nagoya, Japan)

Richard J. Lang (Monash University, School of Medicine, Craiton, Victoria, Australia)

Hiroshi Ozaki (University of Tokyo, Faculty of Agriculture, Tokyo, Japan)

Kenton M. Sanders (University of Nevada, Reno, USA)

Insuk So (Seoul National University, Faculty of Medicine, Seoul, Korea)

Yo Takuwa (Kanazawa University, Faculty of Medicine, Kanazawa, Japan)

Michael P. Walsh (University of Calgary, Canada)

Yoshimichi Yamamoto (Nagoya City University, School of Nursing, Nagoya, Japan)

Speakers: Session 1 (23-July 14:30-17:00)

Regulation of contraction in smooth muscle

Chaired by G. Pfitzer and Y. Takuwa

Y. Takuwa

Kanazawa University, Japan

The roles of PI3-kinase class II a in vascular smooth muscle contraction and hypertension

K. Hirano

Kyushu University, Japan

Mechanism of thrombin-induced pulmonary vasoconstriction: Involvement of reactive oxygen species in the Ca²⁺- and myosin phosphorylation-independent contraction

G. Pfitzer

University of Cologne, Germany

Mechanisms of cAMP mediated Ca²⁺-desensitization of smooth muscle contraction: role of PKA and novel cAMP effectors

M. Eto

Thomas Jefferson University, USA

Molecular mechanism of the regulation of myosin light-chain phosphatase

S. Kobayashi

Yamaguchi University, Japan

Essential roles of Fyn tyrosine kinase and membrane lipid raft in Ca²⁺-sensitization

of vascular smooth muscle contraction

Session 2 (24-July 9:00-10:30)

Trans-membrane and intra-cellular signaling of smooth muscle

Chaired by T. Itoh and M.P. Walsh

T. Itoh

Nagoya City University, Japan

Regulation of smooth muscle contraction by endothelium

M. P. Walsh

University of Calgary, Canada

Attenuation of smooth muscle contraction by AMP kinase-catalysed phosphorylation and inhibition of myosin light chain kinase

K. Kaibuchi

Nagoya University, Japan

Role of Rho and Rho-kinase in vascular smooth muscle contraction

Session 3 (24-July 11:00-13:00)

Inter-cellular communication in smooth muscle tissues

Chaired by C. J. Garland and Y. Yamamoto

K. Nakamura

Kurume University, Japan

Distribution of connexin in smooth muscle tissues

D. Kim

University of Oxford, UK

K⁺ channel modulation and spreading dilatation

Y. Yamamoto

Nagoya City University, Japan

Introduction; mefloquine, a gap junction blocker

R. J. Lang

Monash University, Australia

Multi-cellular activity and communication in the renal pelvis

K. D. Thornbury

Dundalk Institute of Technology, Ireland

Cyclic nucleotides in the regulation of the corpus cavernosum

Session 4 (24-July 14:30-16:30)

Neural regulation of smooth muscle activity

Chaired by H. Hashitani and R.J. Lang

J. Brock

University of Sydney, Australia

Nerve injury induced changes in neurovascular function

K. L. Brain

University of Oxford, UK

Noradrenergic and nitrenergic transmission in the anococcygeus

H. Hashitani

Nagoya City University, Japan
Neural regulation of the function of bladder

M. A. Hollywood
Dundalk Institute of Technology, Ireland
Modulation of urethral smooth muscle ion channels by excitatory neurotransmitters

Session 5A (24-July 17:00-18:30)

Ionic channels and smooth muscle function

Chaired by D.J. Beech, Y. Imaizumi, R. Inoue and I. So

X. Yao
Chinese University of Hong Kong, China
TRPC1 associates with BK_{Ca} channel to form a signal complex

D. J. Beech
University of Leeds, UK
Orai and Stim as store operated Ca-channels

M. Mori
Fukuoka University, Japan
Structural basis for calmodulin-mediated Ca²⁺ entry channel

Session 5B (25-July 9:00-12:00)

Ionic channels and smooth muscle function

Chaired by D. J. Beech, Y. Imaizumi, R. Inoue and I. So

S. Ohya
Nagoya City University, Japan
Hormonal regulation of ion channel expression in smooth muscle

A. M. Gurney
University of Manchester, UK
Potassium channels regulating resting potential in pulmonary artery smooth muscle

I. So
Seoul National University, Korea
The activation mechanisms of TRPC4/5 channels

I. A. Greenwood
St George's, University of London, UK
Ether-a-Go-Go related channels in smooth muscle

S. Kita
Fukuoka University, Japan
New aspects of functional roles of Na-Ca exchanger in smooth muscle

Session 6 (25-July 13:30-16:00)

Development, differentiation and remodeling of smooth muscle

Chaired by H. Ozaki and K. M. Sanders

S. Torihashi
Nagoya University, Japan
Role of PDGF in development and differentiation of smooth muscle

H. C. Parkington

Monash University, Australia

Remodeling of the uterine wall in pregnancy and labor: functional and molecular aspects

K. Komori

Nagoya University, Japan

Regulation of intimal hyperplasia by endothelial factors

J. X. Yuan

University of California, San Diego, USA

Vascular cell proliferation regulated by ion channels

Date: 23(24)–25 July, 2009

Venue: Nagoya City University Hospital (3F Hall), Nagoya, Aichi, Japan

Outline:

Smooth muscles are distributed in most organs of the body and undertake many important physiological roles. Their properties and functions are diverse and often site specific. In the clinic, an understanding of the basic physiological properties and functions of individual smooth muscle tissues is essential before the development of drug therapies selective for particular organ pathologies.

The distribution of the genetic code on genes has recently been clarified, allowing researchers to examine the structural and functional alterations of cells, tissues and organs in terms of signaling disorders of particular genes. During the 20th century, traditional physiology has clarified many of the basic functional, organizational and regulatory systems determining smooth muscle activity. We are now facing a new era in which these basic properties, and any alterations under pathological conditions, can be re-examined and explained at a molecular level.

This symposium aims to review recent developments in the study of smooth muscle physiology, integrating traditional physiological knowledge with newly developed techniques and ideas. The organizing committee believes that this symposium will signpost many future directions in the study of smooth muscle.

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