



FONDAZIONE  
INTERNAZIONALE  
MENARINI



*Università degli Studi di Firenze*

*VII<sup>th</sup> International Symposium on:*  
**INTERSTITIAL CELLS OF CAJAL**

**Florence (Italy), September 2<sup>nd</sup> - 5<sup>th</sup>, 2012**

Organized by

Farncombe Family Digestive Health Research Institute  
McMASTER UNIVERSITY, HAMILTON, ONTARIO, CANADA

Department of Anatomy, Histology and Forensic Medicine,  
Section of Histology  
UNIVERSITÀ DEGLI STUDI DI FIRENZE, ITALY

and

FONDAZIONE INTERNAZIONALE MENARINI

**SCIENTIFIC PROGRAM**

Hotel Albani  
(Via Fiume, 12)

## **Under the Auspice of**

Università degli Studi di Firenze

### **Co-Presidents of the Symposium**

#### **Jan D. Huizinga**

Professor of Medicine  
and Biomedical Sciences  
McMaster University  
Hamilton, Ontario, Canada

#### **Maria Simonetta Faussonne-Pellegrini**

Professor of Histology  
Faculty of Medicine  
Università degli Studi di Firenze, Italy

### **Scientific Secretariat**

#### **Maria Giuliana Vannucchi**

Department of Anatomy,  
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Section of Histology  
University of Florence,  
Florence, Italy

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### **Organizing Secretariat**

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Sunday, September 2<sup>nd</sup>, 2012 - Afternoon

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05.00 - 07.00 p.m. Registration, Hotel Albani

07.00 p.m. Welcome Reception for all Participants, Hotel Albani

From: *Viajes fotograficos de Santiago Ramon y Cajal, 1903*



16. *Battistero de San Giovanni, Florencia.*

08.15 a.m. **Welcome addresses**

**Authorities**

**Maria-Simonetta Fausson-Pellegrini** (Florence, I)

**Jan D. Huizinga** (Hamilton, CDN)

**Special Lecture with two voices**

Chairperson: **Jan D. Huizinga** (Hamilton, CDN)

08.30 a.m. **Santiago Ramón y Cajal Junquera** (Zaragoza, E)

Art and Science in Santiago Ramon y Cajal's Life

**Concepció Junquera** (Zaragoza, E)

Interstitial Cells of Cajal: original histological slides and drawings seen today

**Session I Interstitial cells of Cajal from morphology to function and dysfunction**

Chairpersons: **Anthony Bauer** (Pittsburg, USA)

**Raj K. Goyal** (Boston, USA)

09.30 a.m. **Hanne B. Mikkelsen** (Copenhagen, DK)

The start of ICC research in modern times

10.00 a.m. **Jean-Marie Vanderwinden** (Brussels, B)

ICC in tissue and stromal tumors

10.30 a.m. **Maria Giuliana Vannucchi** (Florence, I)

The interstitial cells of Cajal located at the deep muscular plexus (ICC-DMP)

11.00 a.m. *Coffee break*

**Session II ICC in organ function**

Chairpersons: **Jihong Chen** (Wuhan, CN)

**William G. Paterson** (Kingston, CDN)

11.30 a.m. **Gregory O'Grady** (Auckland, NZ)

High definition gastric electrical activity analysis in the human

12.00 a.m. **Willem J.E.P. Lammers** (Al Ain, UAE)

The propagation of electrical signals and networks of Interstitial Cells of Cajal

12.30 a.m. **Marcel Jimenez** (Barcelona, E)

Colonic pacemakers and gaseous transmitters

01.00 p.m. *Lunch*

**Session III ICC development and recovery**

Chairpersons: **Miyaka Takaki** (Nara, J)  
**Jiande Chen** (Galveston, USA)

- 02.00 p.m. **Tamas Ordog** (Rochester, USA)  
ICC stem cells: interaction between nutrient-sensing and morphogenetic pathways to control self-renewal and senescence
- 02.30 p.m. **Simon J. Gibbons** (Rochester, USA)  
ICC changes in diabetic gastroparesis and other motility disorders
- 03.00 p.m. **Shigeko Torihashi** (Nagoya, J)  
Gut organ development - Investigation using in vitro system
- 03.30 p.m. *Coffee break*

**Session IV Communication between ICC and the enteric nervous system**

Chairpersons: **Menachem Hanani** (Jerusalem, IL)  
**Jean-Pierre Timmermans** (Antwerp, B)

- 04.00 p.m. **Marcello A. Costa** (Adelaide, AUS)  
Neurogenic and myogenic factors of intestinal motility
- 04.30 p.m. **Terence K. Smith** (Reno, USA)  
Cooperation between ICC and nerves
- 05.00 p.m. **Yong-Fang Zhu** (Hamilton, CDN)  
Enteric nervous system input into small intestine ICC-MP and ICC-DMP calcium transients
- 05.30 p.m. **Insuk So** (Seoul, ROK)  
Involvement of Na<sup>+</sup>-leak channel in substance P-induced depolarization of pacemaking activity in Interstitial Cells of Cajal

**Session V     Calcium signalling in ICC**

Chairpersons: **Kenton M. Sanders** (Reno, USA)  
**Roberto De Giorgio** (Bologna, I)

09.00 a.m.     **Grant Hennig** (Reno, USA)  
Ca<sup>2+</sup> imaging in the gut

09.30 a.m.     **Gerard P. Sergeant** (Dundalk, IRL)  
Mechanisms of pacemaker activity in ICC of the urethra

10.00 a.m.     **Richard J. Lang** (Clayton, AUS)  
Does Ca<sup>2+</sup> signaling drive pyloureteric peristalsis?  
Involvement of atypical smooth muscle cells  
and interstitial cells

10.30 a.m.     *Coffee break*

**Session VI     ICC ion channels and pacemaking**

Chairperson: **Joe Szurszweski** (Rochester, USA)

11.00 a.m.     **Jae Yeoul Jun** (Gwangju, ROK)  
Lipopolysaccharide effects on ICC pacemaker activity

11.30 a.m.     **Sean P. Parsons** (Hamilton, CDN)  
How many chloride channels do you need?

12.00 a.m.     **Gianrico Farrugia** (Rochester, USA)  
A different role for Ano1 in ICC

12.30 a.m.     **Yoshihiko Kito** (Nabeshima, J)  
Pacemaker potentials recorded from ICC-MY in the rabbit  
small intestine

01.00 p.m.     *Lunch*

**Final viewing and discussion of posters**

Chairpersons: **Joe Szurszweski** (Rochester, USA)  
**Noel McHale** (Dundalk, IRL)

09.00 a.m. Viewing and discussion of the posters

09.45 a.m. General discussion of the posters

10.30 a.m. *Coffee break*

**Session VII ICC companions?**

Chairpersons: **Shinsuke Nakayama** (Nagoya, J)  
**Joel Bornstein** (Melbourne, AUS)

11.00 a.m. **Kathleen D. Keef** (Reno, USA)  
Fibroblast-like cells

11.30 a.m. **Hikaru Hashitani** (Nagoya, J)  
Pericytes - Genuine pacemaker cells in suburothelial  
venules of the bladder

12.00 a.m. **Laurentiu M. Popescu** (Bucharest, RO)  
Telocytes

12.30 a.m. *Lunch*

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Wednesday, September 5<sup>th</sup>, 2012 - Afternoon

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### **Session VIII ICC outside gut**

Chairpersons: **Terumasa Komuro** (Tokorozawa, J)  
**Gary M. Mawe** (Burlington, USA)

01.30 p.m. **Mohammad S. Imtiaz** (Newcastle, AUS)  
Lymphatic pacemaking - a symbiosis of mechanisms

02.00 p.m. **Sean M. Ward** (Reno, USA)  
Role of ICC in egg transport by the oviduct in health and disease

02.30 p.m. **Karen D. McCloskey** (Belfast, UK)  
An updated view of interstitial cells of Cajal in the urinary bladder

### **Concluding remarks**

Chairperson: **Maria-Simonetta Fausone-Pellegrini** (Florence, I)

03.00 p.m. **Kenton M. Sanders** (Reno, USA)  
Highlights and controversies in interstitial cell research; where to go from here..?

03.30 p.m. **Jan D. Huizinga** (Hamilton, CDN)  
End of the symposium

From: *Viajes fotograficos de Santiago Ramon y Cajal, 1903*



14. *Vista de la cúpola del Duomo y del Campanile, desde la via de Pecori, Florencia.*



## POSTERS

- 1. Baker S.A., Salter A.A., Ward S.M., Sanders K.M.**  
(Reno, USA)  
Responses to enteric motor neurons in mutant mice with reduced intra-muscular ICC in the murine gastric fundus
- 2. Carbone S.E., Wattchow D.A., Spencer N.J., Brookes S.J.H.**  
(Adelaide, Australia)  
The responsiveness of smooth muscle cells in the guinea pig ileum is affected by elements of dissection
- 3. Cromie R., Shonnard M., Riley H., Romanick S., Hennig G.**  
(Reno, USA)  
High slow wave frequencies reduce the frequency of antral peristaltic contractions in the isolated murine stomach
- 4. Drumm B.T., Hollywood M.A., Sergeant G.P., Thornbury K.D., Harvey B.J., McHale N.G.**  
(Dublin, Ireland)  
Role of Ca<sup>2+</sup> influx and diffusion in the initiation and propagation of calcium waves in ICC freshly isolated from the rabbit urethra
- 5. Lam M., Dey A., Chakrabarty B., Exintaris B.**  
(Victoria, Australia)  
Pacemaker activity, c-kit positive cells and contractility in the prostate gland
- 6. Gevaert T.**  
(Leuven, Belgium)  
Identification of telocytes in the upper lamina propria of the human urinary tract
- 7. Gibbons S.J., Choi K.M., Sha L., Beyder A., Verhulst P.J., Mason J.E., Bauer A.J., Ordog T., Linden D.R., Szurszewski J.H., Kashyap P.C., Farrugia G.**  
(Rochester and Pittsburgh, USA)  
IL-10 Reverses Delayed Gastric Emptying, Slow Wave Abnormalities and Smooth Muscle Membrane Potential Gradient changes in Diabetic NOD/ShiLtJ Mice
- 8. Gray S.M.Y., McGeown J.G., McMurray G., McCloskey K.D.**  
(Belfast and Cambridge, UK)  
*In situ* calcium responses of ICC populations in the guinea-pig bladder to electrical field stimulation suggests functional innervation

- 9. He X.-D., Goyal R.K.**  
(Boston USA)  
Cellular location and nature of the ion channel responsible for nitregic inhibitory junction potential (IJP) in the smooth muscle cells
- 10. Iino S., Horiguchi K., Horiguchi S.**  
(Fukui, Japan)  
Interstitial cells of Cajal in c-Kit mutant mice
- 11. Kim B.J., Nam J.H., Kim S.J., So I.**  
(Yongsan, Kyungju, Seoul, Korea)  
Effects of Transient Receptor Potential Channel Blockers on Pacemaker Activity in Interstitial Cells of Cajal from Mouse Small Intestine
- 12. Loera-Valencia R., Wang X.-Y., Wright G.W.J., Parsons S.P., Huizinga J.D.**  
(Hamilton, Canada and Potosí, México)  
Molecular screening of chloride channels in single interstitial cells of Cajal
- 13. Luesma M.J., Castiella T., Muñoz G., Santander S., Cajal S., Junquera C.**  
(Zaragoza, Spain)  
Primary cilia in interstitial cells of Cajal (ICCs) and gastrointestinal stromal tumor (GIST)
- 14. Manetti M., Ruffo M., Guiducci S., Matucci-Cerinic M., Ibba-Manneschi L.**  
(Florence, Italy)  
Telocytes in normal and scleroderma skin
- 15. Marques P., Silva I., Vieira C., Ferreirinha F., Magalhães-Cardoso M.T., Duarte-Araújo M., Correia-de-Sá P.**  
(Porto, Portugal)  
Muscarinic neuromuscular transmission amplification by adenosine released from interstitial cells of Cajal of the rat ileum
- 16. Mitsui R., Miyamoto S., Takano H., Hashitani H.**  
(Nagoya, Japan)  
Functional characteristics of submucosal venule in rat distal colon
- 17. Nakayama S., Taniguchi M., Shozib H.B., Sawamura K.**  
(Nagoya, Japan)  
Spatial Characterization of Spontaneous Electric Activity in the Ileum of Mice Using Arrayed Microelectrodes with Increased Surface Area

- 18. Paterson W.G., Zhang Y.**  
(Kingston, Canada)  
Characterization of ascending and descending colonic neuromuscular reflexes in wild type and interstitial cell of Cajal (ICC)-deficient mice
- 19. Pistilli M.J., Parsons S.P., Huizinga J.D.**  
(Hamilton, Canada)  
Myogenic origin of rhythmic propulsion of the murine jejunum *in vitro*
- 20. Radenkovic G.**  
(Nis, Serbia)  
Development of c-kit-immunopositive interstitial cells of Cajal in the human digestive tract
- 21. Tamada H., Hashitani H., Komuro T.**  
(Nagoya and Tokorozawa, Japan)  
Morphological features of the interstitial cells of Cajal associated with the submucosal plexus
- 22. Toyomasu Y., Hayashi Y., Lorincz A., Bardsley M.R., Popko L.N., Young D.L., Gibbons S.J., Linden D.R., Szurszewski J.H., Farrugia G., Ordog T.**  
(Rochester, USA)  
Insulin-like growth factor 1 (IGF1) encodes memory of past food intake via pleiotropic effects on the gastric neuromuscular apparatus
- 23. Uyttebroek L., Shepherd I.T., Hubens G., Timmermans J.-P., Van Nassauw L.**  
(Antwerp, Belgium and Atlanta, USA)  
Ano1, a marker for interstitial cells of Cajal in the zebrafish intestine
- 24. Wang X.-Y., Bercik P., Ruo L., Ramsay J., Aziz T., Muqtadir Z., Orr S., Pistilli M., Huizinga J.D.**  
(Hamilton, Canada)  
Distribution of pacemaker cells and peristaltic coordination in human gastro-duodenal junction
- 25. Wright G.W.J., Parsons S.P., Huizinga J.D.**  
(Hamilton, Canada)  
Colonic interstitial cells of Cajal associated with the myenteric plexus harbour ion channels regulated by cholinergic neurotransmission

## GENERAL INFORMATION

### Meeting address

The Meeting will take place at “Hotel Albani” - Via Fiume, 12 - Florence (Italy).  
Tel.: +39 055 26030.

### Secretariat during the Meeting

#### Opening hours:

Sunday, September 02<sup>nd</sup>, from 05.00 p.m. to 07.00 p.m.

Monday, September 03<sup>rd</sup>, from 08.00 a.m. to 05.30 p.m.

Tuesday, September 04<sup>th</sup>, from 08.30 a.m. to 01.00 p.m.

Wednesday, September 05<sup>th</sup>, from 08.30 a.m. to 04.00 p.m.

### Official Language

The official language of the Congress is English. Simultaneous translation will not be provided.

### Registration fees

active participants	Euro	300,00
one day participation	Euro	80,00

All active participants are entitled to:

- attend all scientific sessions
- receive congress kit including Abstract Book
- have access to social events  
(Sunday 2<sup>nd</sup> and Wednesday 5<sup>th</sup> September, 2012)
- lunch at the meeting place

### Technical facilities

Facilities will be available for computer presentations and overhead projections. A slide center with PC (Windows and Mac) will be available to check and preview presentations. Speakers are requested to give a copy of their presentation on USB memory stick, CD or DVD to the technicians at the slide centre, at least one hour before the session.

### Opening hours:

Monday, September 03<sup>rd</sup>, from 07.30 a.m. to 05.30 p.m.

Tuesday, September 04<sup>th</sup>, from 08.00 a.m. to 01.00 p.m.

Wednesday, September 05<sup>th</sup>, from 08.00 a.m. to 04.00 p.m.

### Lunches and coffee breaks

Lunches and coffee breaks will be served in the Meeting area.

### Abstracts book

Participants will receive the Abstract book at the Meeting.

### Certificate of attendance

The certificate of attendance will be provided.