



3rd INTERNATIONAL CONGRESS
ON RESPONSIBLE STEM CELL RESEARCH
FROM CELLS TO CELL PRODUCTS DEVELOPMENT OF NEW THERAPEUTIC TOOLS

FROM CELLS TO CELL PRODUCTS

DEVELOPMENT OF NEW THERAPEUTIC TOOLS

16-17-18 November 2016

Padua - Italy



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ORGANIZERS:



la Pediatria

CLINICA PEDIATRICA

(Department of Women's and Children's
Health University of Padua - Italy)



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ACADEMIA VITA

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CLINICA PEDIATRICA

The "Clinica Pediatrica" operates in the University of Padova Hospital and along with other pediatric and obstetric-gynecological operating units is part of Department of Women's and Children's Health.

It provides: treatments in inpatient setting to patients with acute medical illnesses, treatments in an outpatient setting, activities and special outpatient services with the goal of restoring and maintaining the health and well-being, improving life expectancy, minimizing the outcomes of debilitating diseases.

PONTIFICIA ACADEMIA PRO VITA (PAV)

The Pontificia Academia Pro Vita (PAV), founded by Pope John Paul II, takes care of the promotion and defense of human life, especially regarding bioethics, concerning with Christian morality. Its statutes are defined by the motu proprio *Vitae Mysterium* by Pope John Paul II on 11 February 1994.

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PRESENTATION

The Department of Women's and Children's Health of the University of Padua in collaboration with The Pontifical Academy for Life of the Roman Catholic Church is organizing the

Third international Congress on Responsible Stem Cell Research

that will be held in

Padua, 16-18 November 2016

at historical Caffè Pedrocchi, Sala Rossini, via VIII Febbraio 15

Regenerative Medicine has emerged as a new discipline based on progress in cell and molecular biology allowing isolation, characterization, expansion and engineering of cells as potential therapeutic tools. Experience in the last decade yielded significant results in the reconstruction of relatively simple tissues, such as skin or cornea. However, the use of cells for regeneration of more complex organs, such as the heart or the brain, has encountered more difficulties, probably due to a still limited knowledge of mechanisms underlying cell grafting and integration in the host tissue. In other words, knowledge in tissue biology did not parallel progress in cell and molecular biology. The concept of "replacing" diseased or aged tissues and organs with younger and more active cells, such as stem cells, has dominated the field for some years. Experimental and clinical evidence now indicates that repopulation of host tissue with exogenous cells is generally inconsistent, supporting an indirect primary mechanism other than structural integration of transplanted cells at injured tissue, and it is generally accepted that such underlying mechanisms can be mostly characterized as paracrine effects.

The traditional view of paracrine communication, based on diffusion of soluble factors among neighboring cells, has been recently revolutionized by recognizing that cells send signals via secretion extracellular vesicles. These nanoparticles, exhibiting distinct structural and biochemical properties according to their intracellular site of origin, can play a pivotal role in intercellular signaling by exchanging mRNA, microRNA, second messengers, cytokines and proteins among cells within a defined microenvironment.

Extracellular vesicles can be isolated from cultured cells in sufficient amounts for clinical use, and are the object of extensive investigation for several therapeutic applications, ranging from adoptive immunotherapy to anticancer and anti-inflammatory therapy. The above advancements bear important practical, economical and ethical implications. Moving from cells to cell products could enormously simplify clinical grade production, reducing costs and bringing such innovative tools closer to more extensive clinical use. Tumorigenic risk due to transplantation of live manipulated cells should also be significantly reduced. The role of pluripotent stem cells could also be reconsidered. The Third International Congress on Responsible Stem Cell Research will address these issues thanks to the participation of international qualified speakers, providing a unique opportunity of learning and exchanging ideas in this emerging field of translational Medicine. Nobel Prize **Shinya Yamanaka** will join on video conference, many others important guests will participate.

«The Pontifical Academy for Life of the Roman Catholic Church is proud to sponsor the 3rd International Congress on Responsible Stem Cell Research (RSCR) in Padua, on 16-18 November 2016 on "From Cells to Cell Products. Development of New Therapeutic Tools»

SCIENTIFIC COMMITTEE

Chair

Prof. Katarina LE BLANC

(Hematologiska kliniken, Huddinge Universitetssjukhus, Stockholm, Sweden)

Co-chairs

Prof. Giorgio PERILONGO, Prof. Maurizio MURACA

(Department of Women's and Children's Health, University of Padova, Italy)

Members

Prof. Tiziana BREVINI

(Associate Professor of Anatomy and Embryology at the University of Milan, Italy)

Prof. Benedetta BUSSOLATI

(Associate Professor of Nephrology Center for Molecular Biotechnology Dept. of Molecular Biotechnology and Health Sciences, University of Torino, Italy)

Prof. Maureen CONDIC

(Department of Neurobiology & Anatomy, University of Utah, USA)

Prof. Paolo DE COPPI

(Head of Stem Cells and Regenerative Medicine at the UCL Institute of Child Health in London (UK))

Dr. Christophe MARTINAUD

(Fédération de Biologie Clinique, Hôpital d'Instruction des Armées Percy, Clamart, France)

Prof. Mark MAEURER

(Head of the Division of Therapeutic Immunology, LabMed and MTC, Karolinska Institute, Stockholm, Sweden)

Rev. Renzo PEGORARO

(Chancellor of the Pontifical Academy for Life)

Prof. Augusto PESSINA

(President of the Gruppo Italiano Staminali Mesenchimali, Italian Association for the study of Mesenchymal Stem Cells)

Prof. Peter QUESENBERRY

(Director of Hematology/Oncology Research, The Warren Alpert Medical School of Brown University, Rhode Island USA)

Fr. Jacques SUADEAU

(Corresponding Member of Pontifical Academy for Life)

OFFICIAL LANGUAGE: ENGLISH

**3RD INTERNATIONAL CONGRESS
ON RESPONSIBLE STEM CELLS RESEARCH
"FROM CELLS TO CELL PRODUCTS:
DEVELOPMENT OF NEW THERAPEUTIC TOOLS"**

**WEDNESDAY 16 NOVEMBER 2016
Opening Session
Aula Magna
Palazzo Bo, University of Padua
Via VIII Febbraio 2, Padua**

Chairpersons:

K. LeBlanc (Sweden) & G. Perilongo (Italy)

- 14.00: Opening Address
- 14.30: **Nobel Prize Lecture** (video conference): Dissecting human reprogramming towards pluripotency, *S. Yamanaka (Japan)*
- 15.00: Regenerative Medicine: meeting the expectations? *K. LeBlanc (Sweden)*
- 15.30: Extracellular vesicles: biology and characterization, *P.J. Quesenberry (USA)*
- 16.00: Isolation and characterization of primary human bone marrow mesenchymal stromal cells, *S. Scheding (Sweden)*
- 16.30: Epigenetic and mechano-sensing related control of cell fate, *N. Elvassore (Italy)*
- 17.00: Impact of the "Disease-in-a-Dish" model on the management of genetic diseases, *G. Tiscornia (Spain)*
- 17.30: Overview of the bioethical issues on stem cells, *Henk ten Have (USA)*
- 18.30: Welcome drink at historical **Caffé Pedrocchi**.
- 21.15: Concert at **Chiesa dei Servi**, Vicolo dei Servi, Padua.

**THURSDAY 17 NOVEMBER 2016 - MORNING: CLINICAL
Caffè Pedrocchi, Sala Rossini, Via VIII Febbraio 15, Padua**

• Clinical advances in cell therapy and tissue engineering

Chairpersons:

A. Uccelli (Italy) & P. De Coppi (UK)

- 09.00: Tissue engineering at bedside: the paradigm of corneal reconstruction,
P. Rama (Italy)
- 09.25: Regenerative Medicine as tissue/organ replacement:
The challenge of Tissue Engineering, *P. De Coppi (UK)*
- 09.50: Cell Therapy of Multiple Sclerosis at bedside, *A. Uccelli (Italy)*
- 10.15: Regenerative Medicine as tissue/organ regeneration:
the new approach of extracellular vesicles, *B. Bussolati (Italy)*
- 10.40: Bioethics of clinical applications, *C. Petrini (Italy)*
- 11.05: Coffee Break (Caffè Pedrocchi).

• Mesenchymal stem/stromal cells (MSCs)

Chairpersons:

B. Zavan (Italy) & A. Pessina (Italy)

- 11.30: Opinion and evolving concept on mesenchymal stem cells,
L. Sensebè (France)
- 11.55: Mechanisms of immune modulation by mesenchymal stem cells,
A. Viola (Italy)
- 12.20: The potential of mesenchymal stem cells as vehicles for drug delivery,
A. Pessina (Italy)

• Focus on Cell Factories

Chairpersons:

M. Krampera (Italy) & A. Pessina (Italy)

- 12.45: GMP facilities for cell therapy: comparing challenges for a private
company and for a public hospital, *M. Jurga (Belgium), L. Lazzari (Italy)*
- 13.20: End of Session
- 13.30: Lunch

**THURSDAY 17 NOVEMBER 2016 - AFTERNOON: RESEARCH
Caffè Pedrocchi, Sala Rossini, Via VIII Febbraio 15, Padua**

• Paracrine signalling

Chairpersons:

G. Gerosa (Italy) & A. Viola (Italy)

- 15.00: Regulation of immune responses by extracellular vesicles and potential applications for immunotherapy of cancer and infectious diseases, *PD Robbins (USA)*
- 15.25: Mesenchymal stem cell-derived extracellular vesicles as immune modulators, *M. Muraca (Italy)*
- 15.50: Bioethics of research, *M. Condic (USA)*
- 16.15: Coffee Break (Caffè Pedrocchi).

• New perspectives in cell therapy

Chairpersons:

A. Rosato (Italy) & M. Dominici (Italy)

- 16.40: Session A: Key lecture:
Multiple Players in Cancer Immunotherapy:
From MSC to CAR, *M. Dominici (Italy)*
- 17.05: Extracellular vesicle-shuttled mRNA in mesenchymal stem cell communication paradigm, *A. Cherubini (Italy)*
- 17:20: Extracellular vesicles as potential biomarker for acute GVHD, *G. Lia (Italy)*
- 17:35: Session B: Key lecture:
Adoptive immunotherapy with tumor antigen-specific redirected Cytokine-Induced Killer (CIK) cells, *A. Rosato (Italy)*
- 18:00: Non coding RNA expression by high throughput sequencing profiles of Extracellular Vesicles in human Hepatocellular carcinoma cell lines, *A. Berardi (Italy)*
- 18:15: Human Platelet Lysates for Human-based, Xeno-free Stem Cell Culture, *G. Gstraunthaler (Austria)*
- 18:30: End of Sessions
- 21.00: Social Dinner at **Museo di Storia della Medicina (MUSME)**,
Via San Francesco 94, Padua.

FRIDAY 18 NOVEMBER 2016 - MORNING: RESEARCH
Caffè Pedrocchi, Sala Rossini, Via VIII Febbraio 15, Padua

• **Cell Reprogramming and organ reconstruction**

Chairpersons:

T. Brevini (Italy) & T.C. Grikscheit (USA)

09.00: Epigenetic conversion of cell lineage, *T. Brevini (Italy)*

09.25: Direct cell reprogramming for the study of hereditary neurological diseases,
J.E. Ahlfors (Canada)

9.50: Bioartificial organs: dead or alive? *Z. Pitkin (USA)*

10.15: Tissue engineering of the gastrointestinal tract, *T.C. Grikscheit (USA)*

10.40: General discussion.

11.00: Coffee Break (Caffè Pedrocchi).

• **Neurological diseases**

Chairpersons:

N. Scolding (UK) & G. Göritz (Sweden)

11.30: Session A: Key lecture:

Stem cell treatment of multiple sclerosis, *N. Scolding (UK)*

11.55: Implantation of neural cells embedded on PLA/CS composite scaffold conduit
promotes regeneration in a rat model of multiple sclerosis, *E. Hoveizi (Iran)*

12.10: ROCK inhibition promotes phenotypic rescue of human iPSCs- derived neurons
with Oligopherenin-1 loss of function, *G. Zanni (Italy)*

12.25: Session B: Key lecture:

Nervous system scarring and repair, *C. Göritz (Sweden)*

12.50: A new ethical and rapid method of producing human neural stem cells,
J-E. Ahlfors (Canada)

13:05: No stem cell therapy without stem cell patent – Implications of the jurisdiction
of the European Court of Justice to protect human embryos, *T. Faltus (Germany)*

13.30: Lunch

FRIDAY 18 NOVEMBER 2016 - AFTERNOON: SOCIAL
Padua City Hall, Sala Paladin, Via del Municipio I, Padua

• **Resources, regulations, media**

Chairpersons:

G. Migliaccio (EATRIS, EU) & R. Pegoraro (Italy)

15.00: Trends in EU regulations – *EMA. D. Melchiorri (EMA, EU)*

15.25: Trends in EU regulations – Tissue/organ transplantation, *A. Nanni Costa (Italy)*

15.50: Industry perspective, *A. Vertes (UK)*

16.15: The pivotal role of media in the advancement of therapeutic tools, *R. Stutzki (CH)*

16.40: Coffee break

17.05: The role of patient organizations, *G. Volpato (Italy)*

17.25: Cord blood banking, *C. Pintus (Italy)*

17.50: Bioethics of resources, *S. Semplici (Italy)*

18.15: General discussion

19.00: End of Session



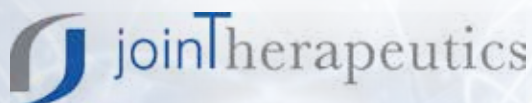
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