

**New insights and perspectives
in stem cell research**

Pavia, May 16th-17th, 2006

**Organized by
DIPARTIMENTO DI SCIENZE CHIRURGICHE, RIANIMATORIE,
RIABILITATIVE E DEI TRAPIANTI D'ORGANO
DIPARTIMENTO DI BIOLOGIA ANIMALE
UNIVERSITÀ DEGLI STUDI DI PAVIA**

FONDAZIONE INTERNAZIONALE MENARINI

Università degli Studi di Pavia, Aula Magna
Strada Nuova, 65

Policlinico San Matteo, Clinica Pediatrica, Aula "R. Burgio"
Piazzale Golgi, 2

Tuesday, May 16th, 2006 - h. 18.00
Università degli Studi di Pavia, Aula Magna

Opening ceremony

- 18.00 Welcome address
- 18.15 **C.A. Redi** (Pavia, I)
Golgi would be pleased
- 19.00 *Lecture:* **C. Ricordi** (Miami, USA)
A sequential, integrated approach for success in stem cell therapies:
lessons from islet cell transplant
- 19.45 Welcome party

Wednesday, May 17th, 2006 - Morning
Policlinico S. Matteo, Clinica Pediatrica, Aula "R. Burgio"

- 08.45 *Opening Lecture:* **J.B. Gurdon** (Cambridge, UK)
Nuclear reprogramming by *Xenopus* oocytes as a route to cell replacement

Session I - Embryonic and somatic stem cells

- Chairmen: **J.B. Gurdon** (Cambridge, UK)
C.A. Redi (Pavia, I)
E. Solcia (Pavia, I)
- 09.30 **K.H.S. Campbell** (Nottingham, UK)
The role of oocyte kinases in development of embryos produced by somatic

	cell nuclear transfer
10.00	M. Boiani (Münster, D) Factors affecting pluripotency of cloned mouse embryos towards stem cell applications
10.30	T. Barberi (New York, USA) Directing embryonic stem cells towards specific fates: hip for developmental biology, hope for a cure
11.00	Coffee break
11.30	M.S.H. Ko (Baltimore, USA) Defining developmental potency by global expression profiling of stem cells
12.00	P. Collas (Oslo, N) DNA methylation dynamics in human adipose tissue mesenchymal stem cells
12.30	Discussion
13.00	Lunch

Wednesday, May 17th, 2006 - Afternoon
Policlinico S. Matteo, Clinica Pediatrica, Aula "R. Burgio"

Session II - Utilization of stem cells in medicine and surgical practice

Chairmen:	P. Dionigi (Pavia, I) C. Ricordi (Miami, USA) M. Viganò (Pavia, I)
14.00	L. Inverardi (Miami, USA) Stem cells as a source of pancreatic islet beta cells
14.30	A. Pileggi (Miami, USA) Hematopoietic stem cells for tolerance induction to donor-specific allografts
15.00	G. Pompilio (Milan, I) Bone-marrow-derived stem cells for myocardial regeneration: from bench to bedside
15.30	F. Benazzo (Pavia, I) Bioengineered bone tissue with stem cells: preliminary results
16.00	Coffee break
16.20	F. Locatelli (Pavia, I) Hematopoietic stem cell transplantation: an old story with new future perspectives
16.50	G. Nikkhah (Freiburg, D) Cell replacement strategies for neurodegenerative diseases
17.20	M. Muraca (Rome, I) Stem cells as support to surgical and medical therapy in liver diseases
17.50	Discussion
18.15	Conclusions

Stem cell biology is an extremely exciting field of research, well suited to the extraordinary development of knowledge of the entire second half of the 20th century that has been called the "bioscience revolution", one of the main engines of social and economic progress in the advanced countries. This revolution owes a good deal to the pioneering work of Camillo Golgi on the cell structure of the nervous system. Golgi's discoveries, made in Pavia where he lived, earned him the Nobel Prize in 1906, and were the starting point for later research on the minute composition and functional architecture of the cell. From that work came a number of conceptual paradigms that are still used by the scientific community to develop new research projects and clinical applications.

Stem cells are the ideal biological material for the regeneration of damaged tissues and organs and have been suggested as a potential therapeutic option in the treatment of diseases caused by altered cell function, or to repair lesions caused by cell destruction. The availability of cells capable of replacing those that have been lost would make it possible to intervene directly at the site of the lesion and restore the functions of the injured organ so as to improve the quality of life of the patient. Stem cells from adult organisms have already secured important results in clinical practice for the treatment of haematological diseases, burns, degeneration of the cornea and retina.

Currently, clinical applications are in progress to treat diabetes mellitus, Parkinson's disease, necrosis following myocardial infarct, muscular and bone defects, and in the organ transplant field. Many other experimental studies are under way on animal models.

All this scientific activity promises to provide new clinical insights of enormous interest within few years. To abbreviate the time between the experimental and the practical application stages, it is essential to provide incentives for the development of new protocols for the differentiation of stem cells into the types of tissues desired and for the production of a sufficient number of cells.

In the proponents' opinion, the Meeting "New insights and perspectives in stem cell research" will celebrate Golgi's fundamental contribution to the scientific tradition of Pavia by illustrating the high points and problems of one of the most advanced and controversial subjects of cellular investigation. Lectures and sessions are devoted not only to the recent results obtained using embryo cells, but also to a critical analysis of the effects of the first clinical applications. This Meeting is a wonderful opportunity to assess the state of the art, share experiences and results and contact most of the world's experts directly, in view of more effective national and international collaboration.

*Mario Viganò, Carlo Alberto Redi, Paolo Dionigi
Co-Presidents of the Meeting*

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