



Bone Stem Cells

A European Science Foundation Workshop

"Regenerative Medicine" (REMEDI) Research Networking Programme

7-10 October 2009, Bertinoro (Forlì), Italy



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Thursday 8 October

9:00-9:20 **Dominique Pioletti** (Lausanne, CH)
Biomechanical aspects in the development of bone tissue engineering.

Session 1

Chairperson: Dominique Pioletti

9:20 Cama G (Genova, I)
Macroporous brushite bone cement.

9:45 Declercq H (Ghent, B)
2D and 3D differentiation of human stem cells for bone tissue engineering.

10:10 Janicki P (Heidelberg, D)
Prediction parameters for the functional suitability of human mesenchymal stem cells for ectopic bone formation.

10:35 Danti S (Pisa, I)
Osteoblast function/differentiation modulated by intracellular nanotransducers based on piezoelectric nanotubes.

11:00-11:30 coffee-break**Session 2**

Chairperson: Gabriela Ciapetti

11:30 Manfrini M (Ferrara, I)
Adhesion and proliferation of human mesenchymal stem cells are influenced by different biomaterials.

11:55 Lazzarini E (Genova, I)
A model of bioinspired composite material with improved bone forming efficiency.

12:20 Palazzo B (Novara I)
Self-mineralizing polymer based porous scaffolds for bone tissue engineering.

12:45 Buranawat B (London, UK)
A biomimetic bone scaffold for potential use as a carrier for stem cells.

13:10-14:10 lunch

14:10-14:30 Katarina Le Blanc (Stockholm, S)
Mesenchymal stem cells as treatment of graft-versus-host disease

Session 3

Chairperson: Katarina Le Blanc

- 14:30 Marzorati S (Monza, I)
Characterization of different mesenchymal stromal cells isolated from umbilical cord blood (UCB-fMSC), amniotic fluid (AF-fMSC) and bone marrow (BM-MSC) and comparison of their osteogenic potential.
- 14:55 Torreggiani E (Ferrara, I)
Mesenchymal stem cells from Wharton's jelly: encapsulation in alginate microbeads and osteogenic differentiation.
- 15:20 Tognarini I (Firenze, I)
Strontium-inducing adipose tissue mesenchymal stem cells: effects on differentiation into osteoblastic phenotype.
- 15:45 Mele S (Novara, I)
Proliferation and differentiation potential of mouse adipose derived stromal cells on titanium scaffolds.

16:10-16:40 coffee-break

Session 4

Chairperson: Yriö Konttinen

- 16:40 Docheva D (München, D)
Mesenchymal stem cells "face-to-face" with the bone matrix: the role of $\alpha 11\beta 1$ integrin.
- 17:05 Kasten A (Rostock, D)
Stimulation of VEGF expression due to mechanical $\beta 1$ -integrin stress.
- 17:30 Marini F (Firenze, I)
Adipose tissue derived mesenchymal stem cells: effects of two nanostructured titanium alloys on osteogenic differentiation.
- 17:55 Both S (Nijmegen, NL)
Endochondral bone formation by human mesenchymal stem cells.

20:00 Dinner

Friday, 9 October

9:00-9:20 **Thimios Mitsiadis** (Zürich, CH)
Tooth repair and formation using stem cells: lesson from embryogenesis

Session 5

Chairperson: Thimios Mitsiadis

- 9:20 Lacza Z (Budapest, H)
Development of a single-step procedure for a human bone graft containing bone allograft and autologous mesenchymal stem cells.
- 9:45 Egbuniwe O (London, UK)
Human dental pulp stem cells as models for studying potential nerve regeneration.
- 10:10 D'Aquino R (Napoli, I)
Repair of human mandible bone defects by the grafting of dental pulp stem cells and collagen sponge biocomplexes: a successful clinical study.
- 10:35 Krattinger N (Lausanne, CH)
Effects of culture conditions on the proliferation capacity of bone human fetal cells.

11:00-11:30 coffee-break

Session 6

Chairperson: Enrique Gómez-Barrena

- 11:30 Panaroni C (Milano, I)
In utero transplantation of adult bone marrow decreases perinatal lethality and rescues the bone phenotype in the knock-in murine model for classical, dominant osteogenesis imperfecta.
- 11:55 Doornberg JN (Amsterdam, NL)
Real time monitoring of BMP smads transcriptional activity in bone during fracture healing treated with an external-fixator.
- 12:20 Rani N (Bologna, I)
Treatment of nonunion in long bones using platelet gel and packed autologous stromal cells.
- 12:45 Patella S (Bari, I)
Shock waves on human platelet-rich plasma (PRP) and osteoblasts.

13:10-14:10 Lunch

14:10-14:30 **Lucy Di Silvio** (London, UK)
Stem cells for bone regeneration: is there hope or is it all hype?

Session 7

Chairperson: Lucy Di Silvio

14:30 Vadalà G (Roma, I)
Poly-L-lactic/hydroxyapatite electrospun nanocomposite induces chondrogenic differentiation of mesenchymal stem cells.

14:55 Ainola M (Helsinki, FIN)
Bioactive 3D tissue-engineering product for cartilage/bone repair.

15:20 Bertoldi S (Milano, I)
Ability of Polyurethane Foams to Support Placenta-Derived Stem Cells Proliferation and Differentiation into the Osteoblastic Lineage

15:45 Oprita EI (Bucharest, R)
Collagen/nano- β -TCP cross-linked scaffolds for human mesenchymal stem cells used in bone tissue engineering.

16:10-16:40 coffee-break

Session 8

Chairperson: Gerjő Van Osch

16:40 Di Gesualdo F (Firenze, I)
A novel candidate gene therapeutic and mesenchymal stem cell-derived chondrocytes as possible tools against intervertebral disc degeneration.

17:05 Narcisi R (Genova I)
The presence of transforming growth factor- β 1 induces the endochondral phenotype switching on cultured human articular chondrocyte.

17:30 Roseti L (Bologna, I)
Autologous chondrocyte-based therapy for the repair of cartilage damages.

17:55 Rasini V (Modena, I)
Multiparametric immunohistochemical approaches to detect bone proteins on paraffin embedded specimens in a mouse model.

20:00 Dinner

Saturday 10 October

8:30-8:50 Massimo Dominici (Modena, I)
Mesenchymal stem cells between regeneration and destruction.

Session 9

Chairperson: Massimo Dominici

- 8:50 Saeed H (Odense, DK)
Telomerase deficiency leads to decreased bone mass and impaired mesenchymal stem cells (MSC) and osteo-progenitors functions in telomerase deficient (TERC^{-/-}) mice.
- 9:15 Lamghari M (Porto, P)
Neuropeptide Y1 receptor as a potential candidate for bone regeneration therapies.
- 9:40 Alessio N (Napoli, I)
Silencing of BRG1, the ATPase subunit of SWI/SNF chromatin remodeling complex, induces senescence of mesenchymal stem cells.
- 10:05 Lozano D (Madrid, E)
Both N- and C-terminal fragments of parathyroid hormone-related protein restore the altered osteogenic differentiation induced by high glucose in mesenchymal cells from the mouse bone marrow.

10:30-11:00 coffee-break

Session 10

Chairperson: Nicola Baldini

- 11:00 Chen L (Odense, DK)
Dlk1/pref-1/FA1 inhibits chondrocyte differentiation through Akt-dependent pathway.
- 11:25 Baglio SR (Bologna, I)
Temporal gene expression of human bone marrow stromal cells during osteoblast differentiation.
- 11:50 Qiu W (Odense, DK)
Dual function of TNFRSF19 in osteogenesis and adipogenesis.
- 12:15 Squillaro T (Siena, I)
Partial silencing of methyl cytosine protein binding 2 (MECP2) in mesenchymal stem cells induces senescence along with increase of damaged DNA.

12:40-13:40 Adjourn and Lunch



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