

G R I B O I

Groupé de Recherche Interdisciplinaire sur les Biomatériaux Ostéo-articulaires Injectables

Neer
9-10 March 1999
Toulouse -



9th European Meeting on Injectable Bone and Joint Substitution Materials

March 1 - 2, 1999
EPFL, Lausanne

Final Program

Abstracts

List of Participants

Auditorium CO2
Ecole Polytechnique Fédérale de Lausanne

The structures of GRIBOI, Groupe de Recherche Interdisciplinaire sur les Biomatériaux Ostéo-articulaires Injectables:

President	J. Lemaître, Lausanne, Switzerland
Vice-president	B. Duquesnoy, Lille, France
Secretary	P. Hardouin, Berck-sur-Mer, France
Treasurer	P. Van Landuyt, Lausanne, Switzerland
Vice-treasurer	B. Cortet, Lille, France

Scientific committee

D. Bernache-Assolant (Limoges, F), J.P. Delagoutte (Nancy, F), J. Delecrin (Nantes, F), H. Deramond (Amiens, F), P. Hardouin (Berck-sur-Mer, F), H.P. Hildebrand (Lille, F), P. Kaemmerlen (Lyon, F), J.L. Lacout (Toulouse, F), A. Laurent (Paris, F), H. Lecllet (Berck-sur-Mer, F), J. Lemaître (Lausanne, CH), G. Leroy (Lille, F), D. Mainard (Nancy, F), P. Sharrock (Toulouse, F), C. Vallée (Garches, F).

Local organizing committee

Swiss Federal Institute of Technology, Lausanne (EPFL)

J. Lemaître, P. Van Landuyt (EPFL)

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Exhibitor

Teknimed SA, Vic en Bigorre, France

Scientific Endorsement

Groupe d'Etudes et de Travail en Radiologie Ostéo-Articulaire (GETROA)

Association pour l'Etude des Greffes et Substituts Tissulaires de l'Appareil

Locomoteur (GESTO)

Groupe de recherche et d'expérimentation en chirurgie orthopédique (GRECO)

Société Française de Radiologie

Société Française de Rhumatologie

Fédération Nord-Pas de Calais

Swiss Society of Biomaterials (SSB)

Groupe Français de la Céramique

Conference Programme

Monday March 1, 1999

08h15 Welcome and participants registration

08h45 Opening address

Session 1. Acrylic vertebroplasty.

09h00 Vertebroplasty - clinical experience and follow-up results.

D. Rüfenacht et al (Neuroradiology, Genève, Switzerland)

09h30 Temperature generation of bone cement polymerization during vertebroplasty.

H. Deramond et al (Université Hospital, Amiens, France)

10h00 Evaluation of bone cements for use in percutaneous vertebroplasty.

S.M. Belkoff et al (University of Maryland, USA)

10h30 The effect of monomer-to-powder ratio on the material properties of Cranioplastic.

L.E. Jasper et al (University of Maryland, USA)

11h00 Coffee break

Invited lecture

11h30 "Future potentials for using osteogenic stem cells and biomaterials in orthopaedics."

J.T. Triffitt (University of Oxford, GB).

12h15 Lunch and poster session

Session 2. Calcium phosphate cements.

14h30 Calcium phosphate hydraulic cements : state of the art and clinical perspectives.

J. Lemâitre (Swiss Federal Institute of Technology, Lausanne)

15h00 Effects of various additives : lactic acid, glycerol, chitosan on the injectability of a calcium phosphate cement.

L. Leroux et al (Laboratoire des Matériaux, Toulouse, France)

15h30 Coffee Break

- 16h00 Volume effect on biological properties of an hydraulic calcium phosphate cement.
Experimental study in sheep.
B. Flautre et al (IRMS, Berck-sur-Mer, France)
- 16h30 Histological and biomechanical studies of two bone colonizable cements in rabbits.
Lu J.X. et al (Faculté d'Odontologie, Marseille, France)
- 17h00 Physico-chemical properties, composition and in vivo resorption behaviour of a high strength calcium-phosphate cement.
R. Wenz (Merck Biomaterial GmbH, Darmstadt, Germany)
- 19h30 Conference dinner

Tuesday March 2, 1999

Session 3. Hybrid biomaterials.

- 08h30 The use of autologous platelet-derived growth-factors in spinal fusion.
G.L. Lowery et al (Research Institute International, Gainesville, USA)
- 09h00 Association of porous hydroxyapatite and bone marrow cells for bone regeneration.
K. Anselme et al (IRMS, Berck-sur-Mer, France)
- 09h30 Evaluation of rhBMP-2 loaded tricalcium phosphate implants in rabbits bone defects.
P. Laffargue et al (Faculté de Médecine, CHRU Lille, France)
- 10h00 Cartilage repair : current possibilities.
D. Mainard (Hôpital Central, CHU Nancy, France)
- 10h30 Coffee break.

Session 4. Injectable calcium phosphate ceramics.

- 11h00 BCP/HPMC composites : a new concepts for bone and dental substitution biomaterials.
G. Daculsi (Faculté de Chirurgie Dentaire, Nantes, France)
- 11h30 Sterelization effects on injectable biomaterials.
P. Sharrock et al (Université Paul Sabatier, Toulouse, France)
- 12h00 Injectable bone substitute (IBS) : how choosing a convenient polymeric carrier ?
P. Weiss et al (Faculté de Chirurgie Dentaire, Nantes, France)

12h30 Granulometry of the mineral phase influences the biological behavior of an injectable calcium phosphate bone substitute.
O. Gauthier et al (Faculté de Chirurgie Dentaire, Nantes, France)

13h00 Lunch and poster session.

Regulatory aspects.

14h30 A regulatory perspective on injectable bone and joint substitution materials.
J.H. Shaw (Medical Devices Agency, London, United Kingdom)

Session 5. Physico-chemical characterization of biomaterials.

15h00 Morphological and mechanical properties of trabecular bone : state of the art and implications for substitution materials.
P. Zysset (Swiss Federal Institute of Technology, Lausanne)

15h30 Mechanical aspects of cement/prosthesis interface : adhesion or interlocking.
N. Eon et al (Ecole Centrale et CHU de Nantes, France)

16h00 Coffee break

16h15 Test procedure for bone substitute materials.
A. Gisep et al (AO Research Institute, Davos, Switzerland)

16h35 Potentialities of ultrasounds for the non-destructive evaluation of cell adhesion.
A. Myrdycz et al (Université de Valenciennes, France)

17h05 Quantitative investigation of brushite cements and apatite implants by Raman microspectrometry.
G. Penel et al (Faculté d'Odontologie, Lille, France)

17h35 Closing remarks.

Poster Session.

- P01 Biomechanical comparison of two bone cements for use in vertebroplasty.
S.M. Belkoff et al (University of Maryland, USA)
- P02 Vertebroplasty - the interest of pretreatment contrast material injection.
J.B. Martin et al (Neuroradiology, Genève, Switzerland)
- P03 Vertebroplasty - possibilities of opacification to control the polymer implantation procedure.
F. Mottu et al (Neuroradiology, Genève, Switzerland)
- P04 Pathology findings in a case of vertebroplasty with PMMA.
D. San Milan et al (Neuroradiology, Genève, Switzerland)
- P05 Effect of bone cement augmentation on the mechanical properties of human cadaveric vertebrae.
P.F. Heini et al (Orthopaedic Surgery, Bern, Switzerland)
- P06 Nacre induced bone marrow cells stimulation and new bone formation, an in vivo and in vitro study.
M. Lamghari et al (URA CNRS, Muséum National d'Histoire Naturelle, Paris)
- P07 Bone cement is not equal to bone cement : the morphological appearance of some PMMA-products in clinical use.
F. Li et al (Labor für orthopädische Biomechanik, Felix Platter Spital, Basel, Switzerland)
- P08 A novel bioactive orthopaedic composite.
E. Erbe et al (Orthovita, Malvern, USA)
- P09 Cementek[®] : chemical and mechanical characterization. First histological results.
S. Viala et al (Teknimed, Toulouse, France)
- P10 Injectable bioactive cement for hyperthermia
J.R. Cavalheiro et al (INEB, Porto, Portugal)
- P11 Percutaneous treatment of highly vascular bone lesions.
B. Jean et al (Neuroradiology, Genève, Switzerland)
- P12 Mechanical characterization of biocements.
E. Charrière et al (Swiss Federal Institute of Technology, Lausanne)

- P13 Mechanical characterization of brushite cements.
C. Pittet et al (Swiss Federal Institute of Technology, Lausanne)
- P14 Reinforcement of osteosynthesis screws with brushite cement.
P. Van Landuyt et al (Swiss Federal Institute of Technology, Lausanne)
- P15 Influence of polymeric additives on the mechanical properties of α -tricalcium phosphate cement.
L.A. dos Santos et al (State University of Campinas, Brésil)
- P16 Histological aspects of an association of porous HA and bone marrow cells in bone regeneration.
B. Flautre et al (IRMS, Berck-sur-Mer, France)
- P17 Macroporous biphasic calcium phosphate ceramic MBCP[®], a carrier for human growth hormone umatrop[®].
G. Daculsi et al (Faculté de Chirurgie Dentaire, Nantes, France)
- P18 NMR spectroscopy of bone substitutes.
A.P. Legrand et al (ESPCI, Paris, France)
- P19 Characterization of various fluorohydroxyapatites by solid state multinuclear magnetic resonance.
H. Sfihi et al (ESPCI, Paris, France)
- P20 Biomimetic calcium-phosphate coatings on Ti6Al4V. A crystal growth study of OCP and inhibition by Mg²⁺ and HCO₃⁻.
F. Barrere et al (IsoTis BV, Bilthoven, The Netherlands)
- P21 Vertebroplasty of spine metastases.
J. Chiras et al (La Salpêtrière Hospital, Paris, France)

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