



The 24<sup>th</sup> Interdisciplinary Research Conference  
on Injectable Osteoarticular Biomaterials and Bone Augmentation Procedures  
5-7 May 2014 - NANTES, FRANCE



# GRIBOI 2014

## 5-7 May 2014, Nantes (France)

### Scientific Program

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#### *Conference symposia*

- Injectable biomaterials: design & characterization
- Image-guided augmentation procedures
- Animal models & Biomechanics studies
- Combination devices: regulatory issues
- Bone augmentation procedures in hip and shoulder
- Aging spine biology, VBA and reconstruction
- Intradiscal & intra-articular injections
- Bone tumor, VBA and Ablation
- Dental root canal filling

#### *Website*

<http://griboi2014.univ-nantes.fr>

#### *Venue*

**Cité des Congrès**  
**5 rue de Valmy**  
**Nantes, France**





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## Welcome

It is a great pleasure for us to invite you to France to attend the 24th Interdisciplinary Research Conference on Injectable Osteoarticular Biomaterials and Bone Augmentation Procedures (GRIBOI 2014), which will be held in Nantes from May 5-7 2014.

Nantes, historic capital of Brittany, is a cosmopolitan coastal city of 590 000 residents, and is the 6<sup>th</sup> French largest city. Nantes presents a network of higher education and research establishments involving 2,200 researchers in 200 laboratories and 51,000 students

"GRIBOI" (Groupe de Recherche Interdisciplinaire sur les Biomatériaux Injectables) , was initiated by Herve Deramond and collaborators to bring together a truly international group of expert clinicians, engineers, basic scientists and industry partners to discuss the state of the art of injectable biomaterials in bone.

Although thousands of patients have already benefited from minimally invasive bone treatments, this topic continues to be a major research theme of several international research groups involved in GRIBOI conferences and important industries have been built to develop new materials for these applications.

## The Organizers

Chair: Jean-Michel Bouler (LIOAD, Univ.Nantes)

Chair: Bruno Bujoli (CEISAM, Univ.Nantes)

Chair: Olivier Gauthier (LIOAD, ONIRIS)

Chair: Pascal Janvier (CEISAM, Univ.Nantes)

Chair: Pierre Weiss (LIOAD, Univ.Nantes)

1st Day May 5th 2014

8:00 – 8:15

Opening

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| Session 1.1 | <b>Aging spine biology, VBA and reconstruction – Chairmen : J. Hirsch &amp; P. Munk</b>  |
| 8:15 – 8:40 | <i>Keynote Lecture: H. Deramont</i> ‘30 years of vertebroplasty’   |
| 8:40 – 8:55 | <i>Keynote Lecture: J. Hirsch</i> ‘Vertebral augmentation: One’s man view from New England!’   |
| 8:55 – 9:10 | <i>Keynote Lecture: A. Kelekis</i> ‘Failure of Spinal Bone Augmentation: when cement is not enough...’   |
| 9:10 – 9:25 | <i>Keynote Lecture: H. Tang</i> ‘VP surgery in PR China’   |
| 9:25 – 9:35 | <i>Selected Abstract: P. Korovessis</i> ‘Is kiva implant advantageous to balloon kyphoplasty in treating spinal osteolytic metastasis? a prospective randomized controlled study.’ |
| 9:35 – 9:45 | Q&A  |

9:45– 10 :15

Coffee break

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| Session 1.2 | <b>Calcium phosphate materials and Biomineralization (I) – Chairmen: F. Fayon &amp; M.-P. Ginebra</b>  |
| 10:15–10:40 | <i>Keynote Lecture: W. Habraken</i> ‘Going into the deep: Ion-association complexes at the cradle of biomimetic calcium phosphate’   |
| 10:40–10:55 | <i>Keynote Lecture: M. Sandri</i> ‘Magnetic Bioactive and Biodegradable Hollow Fe-Doped Hydroxyapatite Coated Poly(L-lactic) Acid Micro-nanospheres’   |
| 10:55–11:05 | <i>Selected Abstract: E.B. Montufar</i> ‘Thermoresponsive calcium phosphate cements’   |
| 11:05–11:15 | <i>Selected Abstract: J.V. Hanna</i> ‘A solid state <sup>31</sup> P and <sup>29</sup> Si MAS NMR, <sup>43</sup> Ca DOR NMR, and GIPAW DFT study of $\alpha$ -tricalcium phosphate and Si-substituted $\alpha$ -tricalcium phosphate bioactive materials’ |
| 11:15–11:30 | Q&A  |

Session 1.3

**Biomechanical and injectability issues – Chairmen : G. Baroud & D. Pioletti**

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| 11:30–11:50 | <i>Keynote Lecture: G. Baroud</i> ‘Update on the biomechanics of VBA’   |
| 11:50–12:00 | <i>Selected Abstract: R. O’Neil</i> ‘Powder and liquid flow regimes during extrusion of calcium phosphate pastes’   |
| 12:00–12:10 | <i>Selected Abstract: S. Tadier</i> ‘Separation phenomena occurring during the injection of $\beta$ -tricalcium phosphate and glass beads aqueous pastes’ |
| 12:10–12:20 | <i>Selected Abstract: M.P. Hofmann</i> ‘Injectability of a new calcium aluminate cement for endodontic application (Endobinder)’                          |
| 12:20–12:25 | <i>Selected Abstract: C. Lambert</i> ‘review of the aspiration and PMMA delivery techniques in augmentation procedures’                                   |
| 12:25–12:35 | Q&A   |

12:35–14:00

Lunch

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| <b>Session 1.4</b> | <b>Fracture healing – Chairmen: H. Deramont &amp; J. Lane</b>   |
| 14:00–14:25        | <i>Keynote Lecture: H. Pascal-Moussellard</i> ‘Rational for vertebral body augmentation in thoraco-lumbar spine fracture’ |
| 14:25–14:50        | <i>Keynote Lecture: K. Murphy</i> ‘Prophylactic bone augmentation in high risks patients’                                 |
| 14:50–15:15        | <i>Keynote Lecture: D. Noriega</i> ‘Long term clinical results from using SpineJack <sup>®</sup> ’                        |
| 15:15–15:40        | <i>Keynote Lecture: S. Larsson</i> ‘Anti-osteoporosis therapy and fracture healing’                                       |
| 15:40–15:45        | Q&A   |

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| 15:45–16:10 | Coffee break |
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| <b>Session 1.5</b> | <b>Skeletal repair and biomaterials (I) – Chairmen: M. Bohner &amp; W. Lu</b>  |
| 16:10–16:30        | <i>Keynote Lecture: W. LU</i> ‘Development of injectable biomaterials in PR China’   |
| 16:30–16:50        | <i>Keynote Lecture: N. Rochet</i> ‘From MSC to blood for bone reconstruction: the story of BRB’  |
| 16:50–17:10        | <i>Keynote Lecture: M. Lopez-Heredia</i> ‘Bone to go: Metal, ceramic or polymer?’  |
| 17:10–17:20        | <i>Selected Abstract: S. Guelcher</i> ‘Space maintenance and new bone formation with injectable and settable composite bone grafts in a canine mandibular ridge saddle defect model’ |
| 17:20–17:30        | <i>Selected Abstract: Z. Xia</i> ‘Assessment of osteogenic potential of injectable human mesenchymal stem cells/coralline hydroxyapatite/calcium carbonate microtissues’             |
| 17:30–17:40        | Q&A  |

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| <b>2<sup>nd</sup> Day May 6th 2014</b> |
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| <b>Session 2.1</b> | <b>Imaging, tumours, bone augmentation procedures – Chairmen : J. Chiras &amp; K. Murphy</b>   |
| 8:15 – 8:35        | <i>Keynote Lecture: P. Munk</i> ‘Percutaneous treatment of musculoskeletal metastases - fire, ice and cement’                                    |
| 8:35 – 8:55        | <i>Keynote Lecture: T. Le Corroller</i> ‘CPC into the vertebrae: an ex vivo study’   |
| 8:55 – 9:15        | <i>Keynote Lecture: A. Brook</i> ‘Sacroplasty and augmentation in other weight bearing bones: evolutionary and practical’                        |
| 9:15 – 9:35        | <i>Keynote Lecture: J. Chiras</i> ‘Percutaneous reinforced cementoplasty for osteolytic lesions involving long bones’                            |
| 9:35 – 9:45        | <i>Selected Abstract: N. Amoretti</i> ‘Percutaneous injection of bone cement (Cementoplasty) for the treatment of symptomatic subchondral cysts’ |
| 9:45 – 9:55        | Q&A  |

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| 9:55– 10 :30 | Coffee break |
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| <b>Session 2.2</b> | <b>Intradiscal &amp; intra-articular injections – Chairmen : O. Gauthier &amp; P. Weiss</b>   |
| 10:30–10:55        | <i>Keynote Lecture:</i> <b>F. Rannou</b> ‘A new interest of steroid intradiscal injection regarding specific patient phenotypes’          |
| 10:55–11:20        | <i>Keynote Lecture:</i> <b>S. Becker</b> ‘Injectable intradiscal hydrogels – update’  |
| 11:20–11:30        | <i>Selected Abstract:</i> <b>O. Hamel</b> ‘FTIR-Attenuated Total Reflectance: a new tool in the assessment of IVD aging and degeneration’ |
| 11:30–11:40        | Q&A   |
| 11:40–12:30        | GRIBOI ASSEMBLY   |

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| 12:30–14:00 | Lunch |
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| <b>Session 2.3</b> | <b>Calcium phosphate materials and Biomineralization (II) – Chairmen : B. Bujoli &amp; C. Combes</b>   |
| 14:00–14:20        | <i>Keynote Lecture:</i> <b>M.-P. Ginebra</b> ‘Characterization of porosity in injectable bone graft substitute’                                      |
| 14:20–14:40        | <i>Keynote Lecture:</i> <b>Z. Li</b> ‘Research, Development and Commercialization Progress of Bioactive Bone Cement in China’                        |
| 14:40–14:50        | <i>Selected Abstract:</i> <b>C. Despas</b> ‘High frequency impedance measurement for the relevant determination of setting times of apatitic Cement’ |
| 14:50–15:00        | <i>Selected Abstract:</i> <b>D. Pastorino</b> ‘Calcium phosphate foams: Tunable, ready-to-use bone grafts’   |
| 15:00–15:10        | <i>Selected Abstract:</i> <b>I. Strazic</b> ‘Biological and reconstructive properties of gallium-doped calcium phosphate bone substitutes’           |
| 15:10–15:20        | <i>Selected Abstract:</i> <b>A. D’Onofrio</b> ‘Development of a novel injectable strontium containing bone substitute’                               |
| 15:20–15:30        | Q&A  |

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| 15:30–16:00 | Coffee break |
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| <b>Session 2.4</b> | <b>Skeletal repair and biomaterials platforms (II) – Chairmen: P. Sharrock &amp; P. Janvier</b>   |
| 16:00–16:20        | <i>Keynote Lecture:</i> <b>J. Chang</b> ‘Design of bioactive injectable biomaterials for bone regeneration’   |
| 16:20–16:40        | <i>Keynote Lecture:</i> <b>P. Habibovic</b> ‘Regeneration-on-a-chip? Application of novel tools to advance the field of tissue regeneration’                |
| 16:40–16:50        | <i>Keynote Lecture:</i> <b>H. Pan</b> ‘Surface pH: the essential factor for osteoporotic bone regeneration’   |
| 16:50–17:00        | <i>Selected Abstract:</i> <b>T. Taguchi</b> ‘Fabrication and characterization of bone cement-reactive poly(vinyl alcohol) membrane for balloon kyphoplasty’ |
| 17:00–17:10        | Q&A   |

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| Session 3.1 | Drug delivery systems & Combination devices: scientific and regulatory issues –<br>Chairmen : <b>J.-M. Bouler &amp; F. Tarabah</b>                                   |
| 8:15 – 8:35 | <i>Keynote Lecture: F. Tarabah</i> ‘Drug-combined devices, regulatory affairs’   |
| 8:35 – 8:55 | <i>Keynote Lecture: D Pioletti</i> ‘Spatio-temporal control release based on dissipative properties of hydrogel’   |
| 8:55 – 9:15 | <i>Keynote Lecture: C. Combes</i> ‘In vitro and in vivo studies on resorbable, injectable and antibacterial cement for bone reconstruction’                          |
| 9:15 – 9:35 | <i>Keynote Lecture: J. Triffitt</i> ‘Bisphosphonates: Major Determinants Of Their Clinical Potencies And Use As Bone Retentive Agents Around Implanted Materials’    |
| 9:35 – 9:45 | <i>Selected Abstract: T. Miramond</i> ‘association of a novel peptide inhibitor targeting RANK and a crosslinked hydrogel as anti-osteoporotic drug delivery system’ |
| 9:45 – 9:55 | Q&A  |

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| 9:55– 10 :15 | Coffee break |
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| Session 3.2 | <b>Bone augmentation procedures in hip and shoulder – Chairmen: Ph. Hernigou &amp; S. Larsson</b>   |
| 10:15–10:35 | <i>Keynote Lecture: J. Lane</i> ‘Local placement of osteoporotic drugs enhances adjacent bone structure’  |
| 10:35–10:55 | <i>Keynote Lecture: J.-N. Argenson</i> ‘Femoroplasty using an injectable and resorbable Calcium Phosphate bisphosphonate loaded bone substitute to prevent contra-lateral hip fracture in the elderly: a cadaveric biomechanical study’ |
| 10:55–11:15 | <i>Keynote Lecture: K. Engelke</i> ‘3D CT imaging to quantify bone augmentation in the hip’   |
| 11:15–11:35 | <i>Keynote Lecture: Ph. Hernigou</i> ‘Mesenchymal stem cells in orthopedic surgery’   |
| 11:35–11:45 | <i>Selected Abstract: J.C. Le Huec</i> ‘Impact evaluation of an osteosynthesis device dedicated to prevent hip fracture’  |
| 11:45–11:55 | <i>Selected Abstract: Ph. Procter</i> ‘Bone Augmentation Solutions Syndicate (BASS): A collaborative development of bone augmentation solutions for proximal humeral and hip fractures’   |
| 11:55–12:05 | Q&A   |
| 12:05–12:30 | Final remarks and awards  |