

Exploratory Research Symposium

“Where Science meets Clinics”

**Congress Center
Davos, Switzerland
September 2 - 3, 2011**



Program, July 2011

Congress Center Davos
Friday, September 2, 2011
Exploratory Research Symposium

08.00 **Welcome**
Sandra Steiner, Davos, CH
Michael Schütz, Brisbane, AUS

Session 1: Bone Healing

Chairs: Ted Miclau, San Francisco, USA
 Steven Buchman, Ann Arbor, USA

08.15 **Bone repair – or regeneration?**
David Marsh, London, GB

08.45 **Harnessing the interplay among biologic, mechanical, and clinical factors to promote bone repair and regeneration**
Steve Goldstein, Ann Arbor, USA

09.15 **Healing of large segmental osseous defects in vivo with genetically modified sheep skeletal muscle grafts**
Chris Evans et al., Boston, USA

09.30 **Inhibition of noggin with L51P increases BMP2 efficacy during bone regeneration**
Frank Klenke et al., Bern, CH

09.45 **Synergistic effect of BMP-2 and osteopontin derived peptides on differentiation of marrow stromal cells**
Esmail Jabbari, Columbia, USA

10.00 **Vascular alterations in the sprague-dawley rat mandible during intravenous bisphosphonate therapy**
Chestine Guevarra et al., Augusta, USA

10.15 **Coffee Break / Poster Session**

10.45 **Rat model of bisphosphonate related osteonecrosis of the jaw (bronj)**
James Borke et al., Augusta, USA

11.00 **Prefabrication of vascularized bone grafts in the latissimus dorsi muscle**
Daniel Günther et al., Hannover, D

11.15 **Wrap up**

11.30 **Lunch Break / Poster Session**

Session 2: Intervertebral Disc Repair

Chairs: Keita Ito, Eindhoven, NL
Brigitte Vollmar, Rostock, D

- 13.30 **What can be expected from disc repair strategies?**
Eugene Carragee, Redwood City, USA
- 14.00 **Structural complexity in disc / endplate microanatomy:
implications for disc repair**
Neil Broom, Auckland City, NZ
- 14.30 **Endogenous stem/progenitor cell population of the intervertebral
disc and its implication on ageing and degeneration**
Daisuke Sakai, Kanagawa, JP
- 14.45 **Nucleus pulposus tissue engineering using poly-ethylene-glycol
hydrogel and mesenchymal stem cells in an ex-vivo disc
degeneration model**
Samantha Chan et al., Bern, CH
- 15.00 **Tissue engineered construct for replacement of the
intervertebral disc. an in-vivo murine study**
Andrew James et al., New York, USA
- 15.15 **Over-expression of asporin in mice alters intervertebral disc cell
property and matrix composition**
Danny Chan et al., Hong Kong, CHN
- 15.30 **Coffee Break / Posters Session**
- 16.00 **The potential of link N to induce repair of intervertebral disc
degeneration**
Fackson Mwale et al., Montreal, CAN
- 16.15 **Novel therapeutics for dicogenic back pain**
Karin Wuertz et al., Zürich, CH
- 16.30 **Wrap up**
- 18.00 **Conference Dinner at the Restaurant Jatzmeder, Rinerhorn**

Session 3: Acute Cartilage Injury Repair

Chairs: Peter Roughley, Montreal, CAN
Takeshi Sawaguchi, Toyama, JP

- 08.30 **Clinical Issues of Cartilage Repair:
Current concepts and future needs**
Norbert Südkamp, Freiburg, D
- 09.00 **Cartilage Repair: achievements and remaining challenges**
Brian Johnstone, Portland, USA
- 09.30 **Clinical potential of gene-based approaches for articular cartilage
repair**
Henning Madry et al., Homburg, D
- 09.45 **S100 - a biomarker for human articular chondrocyte quality**
Dobрила Nestic et al., Bern, CH
- 10.00 **Cartilage as a source of stem cells: towards an equine therapy**
Helen McCarthy et al., Cardiff, UK
- 10.15 **Coffee Break / Poster Session**
- 10.45 **Regulation of osteogenic and chondrogenic differentiation of
mesenchymal progenitor/stem cells by IL-1 β and oxygen**
Marcus Mumme et al., Basel, CH
- 11.00 **Cartilage- and subchondral bone DERived
factors regulate collagen production in MSC**
Michaela Leyh et al., Regensburg, D
- 11.15 **Histological and histomorphometric investigation on
bone integration of microporous beta-tricalciumphosphat scaffolds**
Anke Bernstein et al., Freiburg, D
- 11.30 **Wrap up**
- 11.45 **Lunch Break**

POSTERS

1. Plunging when drilling: Effect of using blunt drill-bits
G Alajmo^{1,2}, U Schlegel², B Gueorguie², R Matthys² & E Gautier³
2. CHAD fragmentation is common to intervertebral disc degeneration present in both the adult with DDD and the adolescent with scoliosis.
B Alkhatib¹, J Ouellet², P Roughley³, L Haglund¹
3. Posttraumatic systemic inflammation impairs fracture healing in rats
R Bindl¹, S Recknagel¹, T Wehner¹, C Ehrnthaller², F Gebhard, M Huber-Lang², L Claes¹, A Ignatius¹
4. Repair of rat tail annulus fibrosus using injectable high density collagen gels
B Borde¹, A James², R Härtl² & L Bonassar¹
5. Acceleration of fracture repair: TNF- α as a potential therapeutic
J Chan^{1,2}, G Glass¹, L Harry¹, N Horwood¹ & J Nanchahal^{1,2}
6. Acceleration of fracture Repair: muscle v. fasciocutaneous flap
J Chan^{1,2}, L Harry¹, G Glass¹, N Horwood¹ & J Nanchahal^{1,2}
7. An ER-stress response in osteocytes causes hyperostosis in mice
WCW Chan, KY Tsang, VCW Ng, I Melhado, YW Cheng, HY Chik, K Cheah & D Chan
8. Scaffold-based segmental bone defect healing in sheep tibia
A Cipitria¹, JC Reichert^{2,3}, H Schell¹, C Lange⁴, W Wagermaier⁴, M Mehta¹, DR Epari², P Fratzl⁴, DW Hutmacher², GN Duda¹
9. Nucleus pulposus cells and extracellular matrix fragments exposed to autologous splenocytes provoke an autoimmune reaction
S Dudli¹, SJ Ferguson¹, D Haschtmann^{1,2}
10. Partial meniscal replacement in sheep – 3-months results
L Dürselen¹, K Gruchenberg¹, B Friemert², S Reitmaier¹, F von Lübken², N Skaer³, O Kessler⁴, A Ignatius¹
11. Endothelial progenitor cells (CD34+) and bone marrow mesenchymal stem cells co-culture promotes 3D scaffold neovascularization
F Düttenhoefer^{1,2}, R Lara de Freitas^{1,3}, M Loibl¹, G Richards¹, M Alini¹, S Verrier¹
12. Effect of endothelial and mesenchymal stem cell coimplantation on neovascularization and bone formation in critical-sized bone defects
G Finkenzeller¹, S Koob¹, N Torio-Padron¹ & G Björn Stark¹
13. N-METHYL PYRROLIDON: Enhancer of bone formation and inhibitor of bone resorption
C Ghayor, FE Weber
14. Differences of bone defect healing in response to BMP-2 and GDF-5 characterized by *In Vivo* Biomechanics
V Glatt¹, D Wulsten¹; GN Duda^{1,2}

15. Facial augmentation with porous polyethylene (medpor®)— histological evidence of intense foreign body reaction – and presentation of the on-going animal study
M Gosau¹, T Vollkommer¹, J Meier & TE Reichert¹
16. Molecular and in vitro confirmation of the osteogenic and chondrogenic potential of rat biomembrane cells
H Gruber¹, F Riley¹, G Hoelscher¹, E Bayoumi¹, W Ramp², M Bosse¹ and J Kellam¹
17. Morphologic and molecular characterization of the rat biomembrane
H Gruber¹, K Gettys¹, H Montijo¹, J Starman¹, E Bayoumi¹, G Hoelscher¹, J Ingram¹, N Zinchenko¹, K Nelson¹, W Ramp², J Kellam¹ and M Bosse¹
18. Cell proliferation and differentiation of bone marrow stromal cells seeded on a polyurethane meniscus scaffold in dynamic culture
D Guenther¹, C Liu¹, C Haasper¹, C Krettek¹ & M Jagodzinski¹
19. Interaction of synthetic PEG scaffold, growth factors and mechanical loading on mesenchymal stem cells
S Guggisberg¹, SCW Chan¹, LM Benneker², and B Gantenbein-Ritter¹
20. Low dynamic load is essential for maintaining intervertebral disc matrix integrity and cell viability
L Haglund¹, J Moir¹, Beckman¹, K Mulligan¹, B Jim¹, J Ouellet², P Roughley³, T Steffen¹
21. Role of estrogen receptor beta during fracture healing
YX HE¹, Z Liu¹, B Guo¹, L Qin¹, G Zhang¹
22. Diffusion limited process to engineer a localized and stiff calcification zone
^{1,2}Hollenstein J; ¹Hwang J; ¹Cory E; ²Pioletti DP; ¹Sah RL
23. Enhanced chondrogenic differentiation potential of human gingival fibroblasts by spheroid formation on chitosan membranes
SH Hsu^{1,2,*}, GS Huang¹, F Feng³, SY Lin¹, T Ho¹, YC Liao¹
24. Tissue engineering of nucleus pulposus: combinational efforts of scientists, engineers and clinicians
H Hussein¹, MW Naing¹, DJ Williams¹, C Lenardi², S Williams³, Y Liu¹
25. Cell surface glycosylation and glycosaminoglycan composition profiles in immature and mature intervertebral discs
M Kilcoyne¹, E Collin², S Grad³, M Alini³, A Pandit², L Joshi¹
26. Validating the lauge-hansen ankle fracture classification system for in-vivo ankle fractures
J Kwon¹, A Chacko², J Kadzielski³, P Appleton², & E Rodriguez²
27. Effects of vitamin D on rat skeletal muscle regeneration following injury
Z Li¹, I Stratos^{1,2}, P Herlyn^{1,2}, T Mittlmeier², B Vollmar¹

28. Activating bone implants with modular orthobiologics
JS Lee¹, Y Lu¹, S Lan Levengood¹, S Brounts¹, J Molenda¹, B Graf¹,
M Markel¹ & WL Murphy¹
29. Multifunctional 3-D woven scaffolds for cartilage tissue engineering
FT Moutos, BT Estes & F Guilak
30. Effect of mechanical stimulation on ECM deposition and mechanical properties
in tissue engineered intervertebral discs
R Mozia¹, A James,² R Härtl² & L Bonassar¹
31. Tissue-engineered vitalized implants for bone reconstruction
S Otto^{1,2} C Schwarz², F Probst^{1,2} M Cornelsen³ H Seitz³ C Pautke^{1,2}
M Ehrenfeld¹ & M Schieker²
32. Cell-cultural insights into the pathogenesis of bisphosphonate-related
osteonecrosis: impact of bisphosphonate type, dose and acidic milieu
S Otto¹, C Pautke¹, I Westphal², J Schwager², M Ehrenfeld¹ & M Schieker²
33. The road to a novel patient centred recovery scale: a qualitative approach to
recovery after open tibial fracture
I Pallister¹, RW Trickett¹, & P Price²
34. Innovative bone scaffold for reconstructive oral surgery
G Pertici^{1,2}, M Müller¹, S Maccagnan³, F Rossi⁴ & G Perale^{1,4}
35. Reconstruction of ovine critical sized bone defects applying tissue engineering
methods
JC Reichert^{1,3}, A Cipitria², DR Epari¹, S Saifzadeh¹, MA Schuetz¹, GN Duda² &
DW Hutmacher¹
36. Translation of biomechanical concepts in bone tissue engineering: from animal
study to revision knee arthroplasty
A Roshan-Ghias¹; A Terrier¹; B Jolles-Haeberli²; DP Pioletti¹
37. Extracorporeal bone generation
Rosenberg¹, Soudry¹ & Rosenberg²
38. Facilitation of bone healing by implantation of freshly harvested human adipose
tissue-derived stromal cells at an orthotopic site
F Saxer^{1,2}, S Gueven², A Scherberich², J Rechsteiner², F Vinzens²,
C Jaquierey², D Wirz³, B Goepfert³, M Jakob¹, I Martin²
39. A physiologic robot reactor system to simulate in vivo conditions
V Schmid¹, RJ Egli^{2,3}, A Tekari³, R Luginbühl² and J Justiz¹
40. Maintenance of CD34 expression in human adipose-derived mesenchymal
stromal cells in long-term cultures
S Schreiner, S Güven, C Le Magnen, M Jakob, I Martin and A Scherberich
41. Drug release behaviour of solid β -TCP dowels
M Seidenstuecker¹, Y Mrestani², R Neubert², A Bernstein¹, HO Mayr¹

42. ChronOS TM inject in children with bone cysts
T Slongo¹, A Joeris¹, L Planka², P Gal²
43. Enhancement of bone healing by administration of human parathyroid hormone (PTH 1-34) in male rats
EK Stuermer¹, S Sehmisch¹, M Tezval M¹, Komrakova¹, M Wicke² & KM Stuermer¹
44. Musculoskeletal response to whole body vibration during fracture healing in ovariectomized rats and controls
EK Stuermer¹, S Sehmisch¹, M. Tezval M¹, Komrakova¹, M Wicke² & KM Stuermer¹
45. Engineering tendon repair: platelets and elastography
MS Thompson¹, J Alsousou², S Franklin³, N Zargar Baboldashti¹, PA Hulley³, JA Noble¹, K Willett²
46. Unfocused extracorporeal shock waves induce anabolic responses in osteoporotic Bone
OP van der Jagt¹, JH Waarsing¹, W Schaden², N Kops¹, JA Verhaar¹, H Weinans¹
47. Multilayered engineered constructs for cartilage engineering
R Mhanna¹, C Millan¹, K Maniura² & M Zenobi-Wong¹

Exploratory Research Symposium

Organizing Committee

Sandra Steiner (Chairperson)
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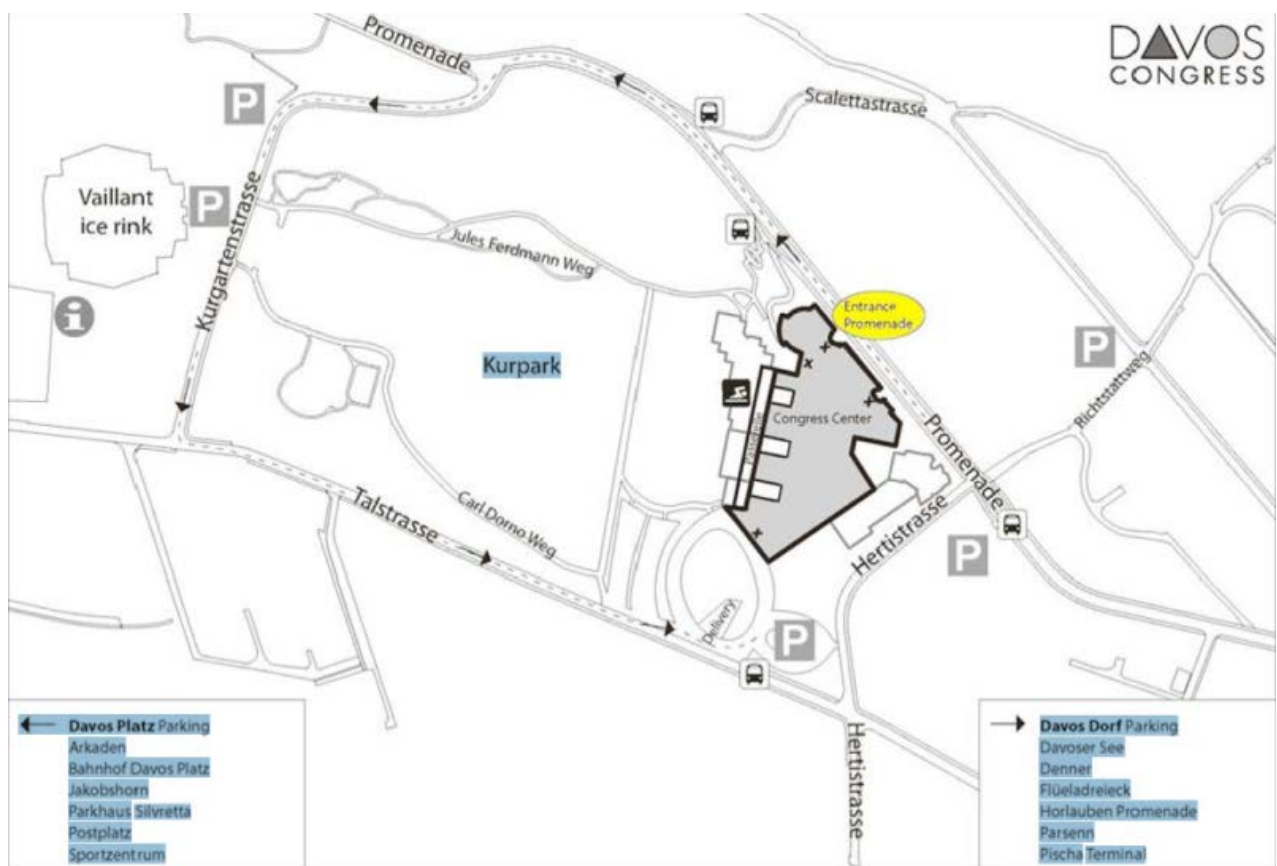
Conference Office

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Davos Congress Center

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Please use the entrance on the Promenade



The Conference Dinner will be held on Friday September 2, 2011 at the restaurant Jatzmeder, Rinerhorn, Davos.



The restaurant Jatzmeder is situated just above tree level with a beautiful view to Davos and the surrounding mountains. On the way up cows with their typical Swiss bells and maybe a marmot or even a mountain goat can be observed. The way down gliding through the night in the cosy gondolas will be an unforgettable experience.

