



OA Biomarker Global Initiative



Workshop II—Genetics and Genomics: New Targets In OA

Chairs: John Loughlin, PhD, Ingrid Meulenbelt, PhD, Virginia Byers Kraus, MD, PhD, Linda Sandell, PhD

November 4th-5th, 2010 • Embassy Suites Atlanta • at Centennial Olympic Park • Atlanta, Georgia, USA

Thursday, November 4th, 2010

8.00am-9.30am **Organizing Committee Breakfast Meeting – Salon 2**

Session 1 • Legacy A,B,C

9.30am-9.45am **Biochemical Biomarkers – Progress Since the First Workshop**
Linda Sandell, PhD / Virginia Byers Kraus, MD, PhD

9:45 am -10:00 am A-1 **Changes in Serum Biomarkers of Cartilage Turnover following ACL Reconstruction**
LTC S. J. Svoboda, T. Harvey, W. Brechue, LTC B. D. Owens, and K. L. Cameron
John A. Feagin Sports Medicine Fellowship, Keller Army Community Hospital, West Point, NY
and The Center for Physical Development Excellence, US Military Academy, West Point, NY

10.00 am -10.15am A-2 **Changes in Serum and Synovial Fluid Biomarkers After Acute Injury**
J.B. Catterall, T.S. Stabler, C.R. Flannery¹, V.B. Kraus
Division of Rheumatology, Department of Medicine, Duke University, North Carolina,
USA and ¹Tissue Repair Research Unit, Pfizer, Cambridge, MA, USA

10.15am-10.35am **OA Phenotypes – Gathering Clinical Clues to Help Resolve Genetic Heterogeneity**
George Moxley, MD
Virginia Commonwealth University, USA

10.35am-10.55am **Discussion**

10.55am – 11.10am **Break - Foyer**

Session 2 • Legacy A,B,C

11:10am – 11:40 am **The arcOGEN Genome-wide Association Scan**
Ele Zeggini, PhD
Wellcome Trust Sanger Institute, UK

11.40am-11.55am **The OAI GWAS**
Rebecca Jackson, MD
Ohio State University, USA

11.55am – 12:15pm **Discussion**

12.15pm-1.30pm **Lunch and Poster Viewing – Legacy D,E,F**



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Session 3 • Legacy A,B,C

- 1.30pm-2.00pm **Meta-analyses and Replicated Loci**
Kay Chapman, PhD
University of Oxford, UK
- 2.00pm-2.15pm **A-3 The Mitochondria-related Phenotype in the Osteoarthritis Disease**
I. Rego-Pérez¹, M. Fernández-Moreno¹, M. Deberg², S. Pértega³, N. Oreiro¹, C. Fernández-López¹, Y. Henrotin², **F.J. Blanco¹**
¹Osteoarticular and Aging Res. Lab. Rheumatology Div., INIBIC-Complejo Hosp. Univ. A Coruña, A Coruña, SPAIN, ²Bone and Cartilage Res. Unit. Univ. of Liege, Liege, BELGIUM, ³Epidemiology Unit. INIBIC - Complejo Hosp. Univ. A Coruña, A Coruña, SPAIN
- 2.15pm – 2.30pm **A-4 Biomarkers as Quantitative Traits for Genetic Studies: An Example from the CARRIAGE Family Study**
V. B. Kraus, H. Chen, Y. Li, S. Nelson, C. Haynes, J. Johnson, T. Stabler, E. R. Hauser, S. G. Gregory, W. E. Kraus, S. H. Shah
Division of Rheumatology, Department of Medicine, Duke University Medical Center, Durham, NC, USA
- 2.30pm-2.45pm **Discussion**
- 2.45pm-3.15pm **Break - Foyer**

Session 4 • Legacy A,B,C

- 3.15pm-3.45pm **Deep Sequencing, Rare Variant Analysis & Other Strategies for Mapping OA Loci**
Steffan Daniel Bos, PhD
LUMC, The Netherlands
- 3.45pm-4.15pm **Functional Studies: Pathways and Biomarkers**
Ingrid Meulenbelt, PhD
LUMC, The Netherlands
- 4.15pm-4.30pm **A-5 Genetic Analysis of Circulating Levels of Osteoarthritis Related Biomarkers: Osteopontin (OPN) and Amphiregulin (AMR) in Family Based Sample**
G. Livshits, S. Ermakov, A. Leonova, I. Malkin
Department of Anatomy and Anthropology, Sackler Faculty of Medicine, Tel Aviv University, Israel
- 4.30pm – 4.45pm **A-6 Association of Single-Nucleotide Polymorphism in Glutathione Peroxidase 1 \ Gene with Kashin-Beck Disease**
Q. Fu^{1,2,3}, J. Cao^{1,2}, B. Caterson⁴, J. M. Jordan^{5,6}, J. B. Renner^{5,6}, V. C. Duance⁴, V. B. Kraus³
¹ Institute of Endemic Diseases, School of Medicine, Xi'an Jiaotong University, Xi'an, Shaanxi, P.R. China, ² Key Laboratory of Environment and Genes Related to Diseases, Xi'an Jiaotong University, Ministry of Education, Xi'an, Shaanxi, P.R. China, ³ Division of Rheumatology, Department of Medicine, Duke University Medical Center, Durham, NC, USA, ⁴ Connective Tissue Biology Laboratories, School of Biosciences, Cardiff University, Cardiff, Wales, UK, ⁵ Thurston Arthritis Research Center, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA, ⁶ Department of Medicine, Orthopaedics and Radiology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA



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- 4.45pm – 5.00pm **A-7 Deep Sequencing of GDF5 Reveals the Absence of Rare Variants at this Important Osteoarthritis Susceptibility Locus**
Dodd AW¹, Rodriguez-Fontenla C², Calaza M², Carr A³, Gomez-Reino JJ², Tsezou A⁴, **Reynard LN¹**, Gonzalez A², Loughlin JI
1Newcastle University, Institute of Cellular Medicine, Musculoskeletal Research Group Newcastle, UK; ²Instituto Investigacion Sanitaria-Hospital Clinico Universitario de Santiago, Santiago de Compostela. Spain; ³University of Oxford, NDORMS, Oxford, UK; ⁴University of Thessaly, Medical School, Department of Biology, Larissa, Greece.
- 5.00pm – 5.15pm **A-8 Proteomics approach for the search of OA biomarkers in serum**
P. Fernández-Puente, J. Mateos, C. Fernández-Costa, N. Oreiro, C. Fernández-López, C. Ruiz-Romero and **F. J. Blanco**.
Osteoarticular and Aging Res. Proteomic Unit. (Proteo-Red). INIBIC-Hospital Universitario A Coruña, A Coruña, SPAIN.
- 5.15pm-5.30pm **Discussion**
- 5.30pm-6.30pm **Poster Session – Legacy D,E,F**
- 6.30pm-9.30pm **Social and Dinner – Legacy D,E,F**
(Dinner served at 7:00pm)

Friday, November 5th, 2010

7.30am-8.30am **Breakfast - Foyer**

Session 5 • Legacy A,B,C

- 8.30am-9.00am **Cartilage Transcriptomics and Epigenetics – Insights into OA**
David Young, PhD
Newcastle University, UK
- 9.00am-9.30am **Osteoarthritis Candidate Genes Identified by Genome-Wide Expression Profiling of Cartilage and their Relevance for OA Joint Repair Tissue Engineering Applications**
Jochen Ringe
Charité University Medicine, Germany
- 9.30am-9.45am **A-9 Specific CpG Sites in the MMP-13 and IL1B Proximal Promoter are Responsible for the Promoter Activity in Human Chondrocytes**
¹Hashimoto, K; ¹Otero, M; ²Roach, H I; ¹Goldring, M B
¹Hospital for Special Surgery, NY, ²University of Southampton, Southampton, UK
- 9.45am – 10.00am **A-10 TSG-6 Protein Activity in Synovial Fluid Predicts the Risk of Knee Replacement Surgery**
IWisniewski, H-G; ^{1,2}**Band, P A**; ³Liublinska, V; ^{1,2}Abramson, S; ²Attur M; ¹Colon, E;
²Karia, R J; ⁴Stabler, T; ⁴Kraus, V
¹NYU School of Medicine, New York, NY, ²NYU Hospital for Joint Diseases, New York, NY, ³Harvard University, Cambridge, MA, ⁴Duke University School of Medicine, Durham, NC



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10.00am – 10.15am A-11 **The Osteoarthritis-Associated Gene GDF5 is Under Epigenetic Regulation by DNA Methylation**
Reynard LN, Gravani A, Loughlin J
Newcastle University, Institute of Cellular Medicine, Musculoskeletal Research Group, Newcastle, UK

10.15am-10.45am **Discussion**

10.45am-11.15am **Break - Foyer**

Session 6 • Legacy A,B,C

11.15am-11.45am **The Additive Prediction of OA Risk Alleles Using the Rotterdam Study**
Joyce van Meurs, PhD
Erasmus Medical Centre, Rotterdam, The Netherlands

11.45am-12.15pm **Chondrocyte Genomics – Implications for Disease Modification in OA**
K. Wayne Marshall, MD, PhD
GeneNews, Canada

12.15pm-12.30pm **Discussion**

12.30pm-1.30pm **Lunch and Poster Viewing – Legacy D,E,F**

Session 7 • Legacy A,B,C

1.30pm-2.00pm **Genomic Diagnostics – Lessons from Allomap**
Robert Woodward, PhD
XDx, Inc.

2.00pm-2.30pm **Future Clinical Exploitation of OA Genetics and Genomics**
Ken Kornman, DDS, PhD
Interleukin Genetics

2.30pm-3.30pm **Panel Discussion**
Steven Abramson, MD (USA), David Hunter, MD, PhD (Australia), Joanne Jordan, MD, MPH (USA), Nancy Lane, MD (USA), Anthony Robin Poole, PhD, DSc (Canada)

Co-Sponsored by the National Institute of Arthritis, Musculoskeletal, and Skin Disease, the Arthritis Foundation, Amgen, Genzyme, the American Orthopaedic Society for Sports Medicine and Pfizer.