



OActive

CONFERENCE

**FROM MODELLING TO
CLINICAL** predictive
and interventional
tools to treat Osteoarthritis



**23
APRIL
2021**



This research project has received funding from the European Community's H2020 Programme, under grant agreement Nr. 777159.

INVITATION

Osteoarthritis (OA) is a degenerative disease of the joints and the most common form of arthritis that causes pain and mobility limitation and, thus, reduces independence and overall quality of life. Osteoarthritis is a complex disease in which biochemical and biomechanical factors are involved and occurs mostly in the weight-bearing joints of the lower limbs, such as the hip and in particular the knee.

This conference will provide new insights, towards the adoption of multi-scale holistic analysis, where patient-specific information from various levels, including molecular (e.g. biochemical/inflammatory biomarkers), cell, tissue, and whole body, will be integrated and combined with information from environmental, behavioural and social risk factors to generate robust predictors for new personalised interventions for delaying the onset and/or slowing down the progression of OA.

Join our discussions on how a combination of mechanistic computational models, simulations, and big data analytics can target patient-specific OA prediction and interventions. Overcoming the limitation of the current treatment interventions, Augmented Reality (AR) empowered interventions allow patients to experience the treatment as more enjoyable, resulting in greater motivation, engagement, and training adherence.

The medical care industry, research & education communities, stakeholders, and other relevant initiatives in the field of Osteoarthritis prevention, will gather together aiming to improve healthcare by transforming and accelerating the OA diagnosis and prediction based on a more comprehensive and holistic understanding of disease pathophysiology, dynamics, and patient outcomes.

This conference is held in the framework of the EU-funded OActive project: "Advanced personalised, multi-scale computer models preventing OsteoArthritis", and will be attended by the EC Project Officer.



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AGENDA

PLENARY SESSION

Chairs : Saila Rinne, Prof Kyriacos Felekkis

- 09:00-09:10 **Opening speech**
Saila Rinne, OActive Project Officer, Head of Policy Sector, DG CONNECT, Unit eHealth Well-Being and Ageing, European Commission
- 09:10-09:20 **OActive Project Vision**
Prof Kyriacos Felekkis, OActive project coordinator, Professor in the Department of Life and Health Sciences, University of Nicosia
- 09:20-09:30 **Ethics related activities**
Mahault Piéchaud Boura, Legal Consultant, Timelex

SESSION I : OSTEOARTHRITIS BIOMARKERS EVALUATION IN VIVO

Chairs : Prof Christoforos Giannaki, Dr Ramon Messeguer

- 09:30-09:45 **Title of the presentation TBD**
Dr Manos Antonogiannakis, Ygeia Hospital
- 09:45-10:00 **Impact of environmental and socioeconomic factors on pain and function in knee OA**
Dr Thijs Swinnen, Postdoc researcher Research Group for Musculoskeletal Rehabilitation, KU Leuven
- 10:00-10:15 **OA-related exosomal and microbiome biomarkers**
Dr Ramon Messeguer, Head of the Drug development Area Health and Biomedicine Department, Leitat Technological Center
- 10:15-10:30 **Inflammation and degradation biomarkers in OA patients**
Dr Christos Papaneophytou, Assistant Professor in the Department of Life and Health Sciences, University of Nicosia



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10:30-10:45

Impact of the clinical evaluation and the OActive database

Dr Christos Papanephytou, Assistant Professor in the Department of Life and Health Sciences, University of Nicosia

Mr Efthymis Stathakis, Senior Data Scientist, CETRI

10:45-11:00

Short break

SESSION II: IN VITRO MODELS

Chairs: Prof Kyriacos Felekkis, Dr Ioanna Katsavou

11:00-11:20

Title of the presentation TBD

Prof Martin Stoddart, PhD, FRSB, Program Leader – Regenerative Orthopaedics, Principal Scientist, AO Research Institute Davos (ARI) | AO Foundation

11:20-11:35

Title of the presentation TBD

Núria Noguera Ferrer, Co-founder and CTO of Tecnologia Regenerativa QREM

11:35-11:50

Title of the presentation TBD

Dimitrios Karathanasis

11:50-12:05

Tissue engineering and osteoarthritis models

Dr Roberto di Gesu, Post doc researcher, RIMED Foundation

12:05-12:20

Impact of in vitro musculoskeletal models

Prof Riccardo Gottardi, Principal Investigator, Fondazione Ri.MED, Italy

12:20-13:00

Lunch break



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SESSION III: IN SILICO MODELS

Chairs: Prof Bill Baltzopoulos, Prof Konstantinos Moustakas

13:00-13:20

Musculoskeletal Biomechanics modelling

Dr David Britzman, Research Associate in Biomechanics, Liverpool John Moores University
 Dr Dimitris Tsaopoulos, Researcher on computational modeling and biomechanics, CERTH
 Prof Konstantinos Moustakas, Associate Professor in the Electrical and Computer Engineering Department, University of Patras

13:20-13:35

Title of the presentation TBD (on Biomechanical modeling)

Invited speaker TBA

13:35-13:50

Title of the presentation TBD (on Prediction models)

Dr Archontis Giannakidis, Assistant Professor, School of Science and Technology, Nottingham Trent University, UK

13:50-14:05

Impact of the in silico musculoskeletal models

Prof Bill Baltzopoulos, Biomechanics, Liverpool John Moores University
 Prof Paulo Lisboa Professor in Applied Mathematics, Liverpool John Moores University

SESSION IV: ICT-BASED PERSONALIZED MODELING AND INTERVENTIONS

Chairs: Dr Dimitrios Tsaopoulos, Dr Ioanna Katsavou

14:05-14:20

Title of the presentation TBD

Invited speaker TBA

14:20-14:35

Title of the presentation TBD

Invited speaker TBA

14:35-14:55

Impact of augmented reality (AR) interventions in Osteoarthritis

Prof Konstantinos Moustakas, Associate Professor in the Electrical and Computer Engineering Department, University of Patras

14:55-15:10

Short break



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SESSION V: RELEVANT H2020 INITIATIVES

Chairs: Ioanna Barouni, Prof Kyriacos Felekis

15:10-15:25

Cluster project I : METAJOINT

Invited speaker TBA (project coordinator)

15:25-15:40

AutoCRAT: for automated manufacturing of novel, next generation regenerative therapies for osteoarthritis

Professor Mary Murphy, Professor in Regenerative Medicine, Regenerative Medicine Institute (REMEDI), National University of Ireland Galway

15:40-15:55

ArthritisHeal: Lipid biology in the rheumatic diseases, the ArthritisHeal consortium

Dr Martin Giera, Head Metabolomics group,
Leiden Universitair Medisch Centrum

15:55-16:10

uKNEEversal: towards a mechanically active fully human osteoarthritic (OA) joint on chip model to screen the efficacy of anti-OA drugs and medical devices

Paola Occhetta, MSCA-IF Postdoctoral fellow at Politecnico di Milano and CEO of BiomimX S.r.l.

16:10-16:25

Nanocomposite hydrogels and ultrasound to treat OA: the ADAMAIORA paradigm

Dr Lorenzo Vannozzi, Technologist, Scuola Superiore Sant'Anna, Italy

16:25-16:45

CLOSING REMARKS AND EVALUATION

Prof Kyriacos Felekis, OActive project coordinator

Dr Ioanna Katsavou, Dissemination Manager, Axia Innovation

16:45

END OF CONFERENCE



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PRESENTERS



Saila Rinne

Head of Policy Sector, DG CONNECT,
UniteHealth Well-Being and Ageing,
European Commission



Prof Kyriacos Felekkis

OActive project coordinator,
Professor in the Department of Life and
Health Sciences, University of Nicosia



Prof Bill Baltzopoulos

Professor of Biomechanics
Liverpool John Moores University



Prof Christoforos Giannaki

Assistant Professor in the Department
of Life and Health Sciences, University
of Nicosia



Prof Konstantinos Moustakas

Associate Professor in the Electrical
and Computer Engineering Department,
University of Patras



Dr Dimitris Tsaopoulos

Researcher on computational modeling
and biomechanics, CERTH



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PRESENTERS



Prof Riccardo Gottardi

Principal Investigator,
Fondazione Ri.MED, Italy
Assistant Professor of Pediatrics
and of Bioengineering, University
of Pennsylvania



Dr Thijs Swinnen

Senior Physical Therapist Division
of Rheumatology, University
Hospitals Leuven,
Postdoc researcher Research Group for
Musculoskeletal Rehabilitation,
KU Leuven



Dr Christos Papanephytous

Assistant Professor in the
Department of Life and
Health Sciences,
University of Nicosia



Dr Ramon Messeguer

Head of the Drug development Area
Health and Biomedicine Department,
Leitat Technological Center



Nùria Noguera Ferrer

Co-founder and CTO of Tecnologia
Regenerativa QREM



Prof Martin Stoddart, PhD, FRSB

Program Leader – Regenerative
Orthopaedics, Principal Scientist
AO Research Institute Davos (ARI) |
AO Foundation



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PRESENTERS



Prof Paulo Lisboa

Professor in Industrial Mathematics,
LJMU, United Kingdom Liverpool John
Moores University, United Kingdom



Dr Roberto di Gesu

Post doc researcher,
RIMED Foundation



Mahault Piéchaud Boura

Legal consultant,
Timelex



Dr David Britzman

Research Associate in
Biomechanics,
Liverpool John Moores
University



Dr Ioanna Katsavou

Chemical Engineer,
Dissemination Manager at
Axia Innovation



Ioanna Barouni

Innovation Manager
CETRI

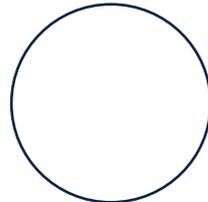


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PRESENTERS



Dr Manos Antonogiannakis
Orthopedic Surgeon
Hygeia Hospital



Dimitrios Karathanasis



Mr Efthymis Stathakis
Senior Data Scientist, CETRI



Dr Archontis Giannakidis
Assistant Professor, School of Science and Technology, Nottingham Trent University, UK



Dr. Lorenzo Vannozzi
Technologist, Scuola Superiore Sant'Anna, Italy



Professor Mary Murphy,
Professor in Regenerative Medicine, Regenerative Medicine Institute (RE-MEDI), National University of Ireland Galway



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PRESENTERS



Dr Martin Giera,
Head Metabolomics group,
Leids Universitair
Medisch Centrum



Paola Occhetta,
MSCA-IF Postdoctoral fellow
at Politecnico di Milano
and CEO of BiomimX S.r.l.



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GENERAL INFORMATION

MEETING DATES: Friday 23rd of April 2021

OFFICIAL LANGUAGE: English



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This event is organized by Axia Innovation



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Secretariat office PCO



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