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Welcome
Acknowledgements

ECTS thanks the following organisations for their continued support of the society.

*AMGEN*
*IPSEN*
*UCB*

ECTS thanks the following organisations for their support of the 47th Calcified Tissue Society Congress 2020.

**Platinum Supporter**

*AMGEN*
*IPSEN*
*UCB*

**Gold Supporter**

*RG*

**Gedeon Richter**

**Silver Supporter**

*Kyowa Kirin*
*Inozyme Pharma*

**Additional Supporters and Educational Grants**

*Bioquant*
*Bruker*
*Elsevier*
*Fresenius Kabi*
*ICCBH*
*IPMRS*
*IPSEN*
*Lilly*
*Mylan*
*Nestlé Nutrition Institute*
*Scanco Medical*
*Stada*
Welcome Message

Dear Colleagues,

It is a great pleasure to welcome you to the ECTS 2020 Digital Congress. The 47th annual meeting of the European Calcified Tissue Society this year will take place virtually due to the COVID-19 pandemic that prevents traveling. However, we will still offer our delegates 3 months of education, split in the ECTS 2020 Live Prime Time that will be held on 22-24 October 2020, and the ECTS@Home series that will run from October to December 2020.

ECTS serves as a forum for researchers and clinicians working in the musculoskeletal field to discover and discuss the latest advances and controversies in research and in the daily care of patients.

ECTS 2020 Live Prime Time will include relevant hot clinical sessions to help managing patients going along the newest knowledge in the field. ECTS 2020 will also focus on the best and latest basic and translational science with renowned leaders in our field. We have implemented more opportunities for discussions and beside our traditional symposia and workshops, there will also be debates, educational and industry symposia.

The ECTS Congress is recognised as a successful scientific meeting thanks to the large number of contributions coming via abstract submissions. We are committed to offer large visibility to promising abstracts by including them in the Live Prime Time plenary, concurrent oral and oral poster sessions. Whether you are a young investigator, clinician, basic scientist, allied health professional or industry representative, you will be exposed to the latest topics in our field. You can also enhance your scientific knowledge by attending eposter presentations.

ECTS 2020 will include a New Investigator programme fully organised by our young leaders, the ECTS Academy. This programme will give the opportunity to new investigators to network virtually, share common interests and present their science in the Poster Forum and in the New Investigator Seminar.

We will offer extensive interactivity throughout ECTS 2020 Digital. You can interact with speakers, moderators, sponsors and other delegates. You can also join or create your own chat room and discuss live hot topics in your daily practice. There will be experts’ live broadcast and you can ask questions in real time.

Collaborations will also be highlighted in several joint sessions with international bone societies: ASBMR, our partners from China, Japan and Korea and new partners from Europe and beyond, including CABS, TERMIS, BMAS and ISEV.
The educational programme will be expanded beyond the Live Prime Time, through the ECTS@Home weekly series, which will include a basic science National Day offered by the French society SFBTM, working group meetings, the ECTS/IFMRS expert forum, workshops, meet the experts sessions, clinical and basic updates, the East meets West symposium and the Mellanby training course. New this year we will have dedicated sessions for Allied Health Professionals, which will also include a Meet the Expert event, and the ECTS/ERA-EDTA workshop on Mineral and Bone Disorders in Chronic Kidney Diseases.

I hope you will enjoy our virtual congress and ECTS@Home series.

Warm regards,

Anna Teti

SPC Chair
Awards
Awardee Wall 2020

ECTS Grants & Awards

ECTS Names Awards

**STEVEN BOONEN CLINICAL RESEARCH Award**

In memory of Professor Steven Boonen, who sadly passed away during the ECTS 50th Anniversary Congress in Lisbon on 20 May 2013. ECTS would like to remember and honour Steven during its annual congress by introducing an annual Steven Boonen Clinical Research Award.

Outi Mäkitie, MD, PhD  
Children’s Hospital, University of Helsinki  
Helsinki, Finland

*The Steven Boonen Clinical Research Award was supported by Amgen Europe.*

**ECTS PHILIPPE BORDIER CLINICAL Award**

Doctor Philippe Bordier (1927-1977) contributed significantly to the bone field by developing bone histomorphometry, which he applied to the analysis of several bone diseases. His work and dynamism in science has been recognized in Europe and United States.

Rajesh V Thakker, Prof  
University of Oxford  
Oxford, United Kingdom

**ECTS IAIN T BOYLE Award**

In memory of Professor Iain T Boyle (1935–2001) who contributed greatly to the field of mineral metabolism and his work on osteoporosis was known and acclaimed nationally and internationally. The award is open to young scientists who have made significant progress and contribution to the field of bone and calcified tissue.

Andrea Palermo, MD, PhD  
Campus Bio-Medico University Rome  
Rome, Italy
ECTS MIKE HORTON BASIC/TRANSLATIONAL Award

Professor Mike Horton (1948-2010) was a hematologist-turned-basic scientist who made significant contributions in the bone field and beyond. He performed pioneering work in osteoclast biology which resulted, among other things, in the recognition of the alpha v beta 3 integrin as a therapeutic target for inhibiting bone resorption. His warm personality and wide-ranging interests inspired many young researchers.

Jane Lian, PhD, Prof
University of Vermont, Larner College of Medicine
Burlington, United States

ECTS Fellowship Award

Basic Fellowship

Antonio Maurizi, PhD
University of L’Aquila Department of Biotechnological and Applied Clinical Sciences
L’Aquilla, Italy

Role of ER stress associated molecular network in the adaptation of dormant breast cancer cells in the bone micro-environment.

Project Summary:
The concept of natural selection, or adaptation, could be extended to tumour cells to describe their ability to spread and survive into a hostile environment. Tumor dormancy is one of the main adaptation mechanisms used by tumour cells to survive in a quiescent status for a long time due to temporary growth arrest. It could be considered a mechanism of adaptation to stress conditions, prompted for instance by chemotherapy or by the immune response, that gives a selective advantage to the metastatic cells. One of the cell stress mechanism described as a potential cell dormancy inducer is the Endoplasmic Reticulum stress (ER stress). Our preliminary data suggest the presence of an ER stress associated molecular network in the dormant breast cancer cells lodging in the bone microenvironment.

In this project, we hypothesized that the ER associated molecular network could induce dormant breast cancer cells to adapt and survive for a long time in the bone microenvironment. Moreover, it could be a potential targetable mechanism to prevent dormancy and eradicate breast cancer cells by chemotherapy, thus reducing the likelihood of their long-term reactivation and mobilisation.
We expect this project could advance our understanding of the mechanisms that regulate the dormancy of breast cancer cells, allowing to identify innovative means to combat cancer relapse.

Clinical Fellowship

Andreas Fontalis, MD MSc MRCS
Academic Unit of Bone Metabolism, University of Sheffield
Sheffield, United Kingdom

Osteoclast precursors in patients treated with denosumab.

Project Summary:
Denosumab cessation is followed by a rapid decrease in BMD, raising concerns about a rebound phenomenon in bone turnover. It has been previously speculated that the long term sustained reduction in bone resorption beyond the end of treatment with bisphosphonates may be due to effects on the circulating osteoclast precursor cells. If in contrast, denosumab does not reduce the precursor cell population, this could explain the very different offset of effect.
This study is a cross-sectional observational study evaluating the population of osteoclast precursors and bone turnover markers, CTX and PINP, in 30 postmenopausal women with osteoporosis (15 controls and 15 treated with denosumab).
For the treatment group (N=15), blood samples will be obtained 6 months following the last dose of denosumab. For the control group (N=15), we will recruit postmenopausal osteoporotic women not receiving any treatment.
Blood will be stained utilising the following antibodies: anti-CD14, anti-MCSFR, anti-CD11b and anti-TNFRII; the dual positive CD14+/M-CSFR+, CD14+/CD11b+ and CD14+/TNFRII+ cells will be classified as osteoclast precursor cells.
Findings of this study will be utilised to elucidate the mechanism underlying the rebound phenomenon in bone turnover observed upon discontinuation of the drug. This information could lead to improved patient care as it will enable us to address the bone loss and increased fracture risk noted upon denosumab cessation and to develop improved, targeted therapeutic approaches.
ECTS 2020 Lecture Award

ECTS EXCELLENCE IN RESEARCH Award

The ECTS Annual Congress is recognized world-wide for the excellent quality of its scientific programme. Each year top international experts are invited to present state-of-the-art lectures on new developments in musculoskeletal research. With the ECTS Excellence in Research Award ECTS recognizes scientists who substantially advanced the field of musculoskeletal research. The recipient of the award is selected by the ECTS Board of Directors from the group of invited speakers of the ECTS Annual Congress.

*Peter Croucher*, Prof
Garvan Institute of Medical Research
Sydney, Australia

ECTS 2020
Abstract and Congress Awards

ECTS-Bone Reports New Investigator Awards

Yetki Aslan
Université de Paris,INSERM 1132
Paris, France

*Mikkel Bo Brent*
Aarhus University
Aarhus, Denmark

*Alice Costantini*
Karolinska Institutet
Stockholm, Sweden

*Karen De Samblancx*
Laboratory of Skeletal Cell Biology and Physiology (SCEBP), Skeletal Biology and Engineering Research Center (SBE), KU Leuven
Leuven, Belgium

*Ghazal Hedjazi*
Ludwig Boltzmann Institute of Osteology at Hanusch Hospital of OEGK and AUVA Trauma Centre, Meidling, 1st Med. Department Hanusch Hospital
Vienna, Austria
Davide Komla-Ebri  
Imperial College London  
London, United Kingdom

Riikka Mäkitie  
Folkhälsoan Institute of Genetics and Research Program for Clinical and Molecular Metabolism  
Helsinki, Finland

Andrea S Pollard  
Imperial College London  
London, United Kingdom

Federica Scotto di Carlo  
Italian National Research Council  
Naples, Italy

Dana Trompet  
KU Leuven  
Leuven, Belgium

**ECTS-ICCBH New Investigator Awards**

Gali Guterman-Ram  
Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health  
Bethesda, United States

Léa Loisay  
Institut IMAGINE and Hôpital Necker-Enfants Malades  
Paris, France

Michela Rossi  
Bambino Gesu’ Children’s Hospital  
Rome, Italy

Simon von Kroge  
University Medical Center Hamburg-Eppendorf  
Hamburg, Germany
ECTS Travel Awards

Beatriz Gamez
University of Oxford
Oxford, United Kingdom

Greta Giacomini
KU Leuven
Heverlee, Belgium

Yohan Jouan
Université de Paris, INSERM 1132
Paris, France

Maria-Bernadette Madel
Université Côte d’Azur, CNRS UMR 7370, Laboratoire de PhysioMédecine Moléculaire
Nice, France

Antonio Maurizi
University of L’Aquila
L’Aquila, Italy

Marion Mesnieres
KU Leuven
Leuven, Belgium

Iona Norwood
University of L’Aquila
L’Aquila, Italy

Shyamsundar Pal China
University of California
San Diego, United States

Komal Waqas
Erasmus Medical Center
Rotterdam, The Netherlands

Timur Alexander Yorgan
University Medical Center Hamburg-Eppendorf
Hamburg, Germany
East Meets West Research Award

Ling Wang
Beijing Jishuitan Hospital
Beijing, China

Feng Xu
the Second Xiangya Hospital of Central South University
Changsha, China

Zhichao Zheng
Affiliated Stomatology Hospital of Guangzhou Medical University
Guangzhou, China

Md Azharuddin
School of Pharmaceutical Education and Research, Jamia Hamdard
New Delhi, India

Dinesh Kumar Patel
Sam Higginbottom University of Agriculture, Technology and Sciences
Payagraj, India

Priyanka Singh
Postgraduate Institute of Medical Education and Research
Chandigarh, India

Satoshi Hagio
Hamanomachi Hospital
Fukuoka, Japan

Jinwoo Kim
Ewha Womans University
Seoul, Republic of Korea

Young-Kyun Lee
Seoul National University Bundang Hospital
Seongnam, Republic of Korea

Ye-Soo Park
Guri Hospital, Hanyang University
Guri City, Republic of Korea
Scientific Programme
ECTS@Home – Overview

October 2020

1 October  The SFBTM French National Day
8 October  ECTS-IFMRS Expert Forum – Big Data Session
The Musculoskeletal Knowledge Portal: An ‘Omics’ Integration tool to Help Your Research and Clinical Practice
14 October Workshop on Bone Tissue Engineering – Fundamental Concepts, Challenges and Opportunities
20 October  The Working Group Day
26 October  ECTS-ICCBH Workshop – Genetic Defects in Mineral and Matrix Homeostasis from Infancy to Adulthood

November 2020

2-7 November  Meet-the-Experts – 5 basic and 5 clinical meet-the-experts sessions
13 November  East-meets-West – The Dysmobility Syndrome
17 November  ECTS-Mellanby Training Course – Diagnostic Tests for Osteoporosis – Clinical Use of Bone Turnover Markers
23 November  Clinical Update 1 – Preventing Falls and Fractures by Means other than Pharmacotherapy
26 November  Clinical Update 2 – Management of Hyperparathyroidism: An Update
27 November  Basic Science Update Biology – Biology Bone as Partaker of Integrated Biology and Pathophysiology
Basic Science Update Technology – Bone Analysis at the Single-Cell Resolution

December 2020

4 December  AHP Seminar 1 & 2
8 December  CKD-MBD Expert Forum – jointly organised with ERA-EDTA CKD-MBD Working Group
# Programme Overview

## Thursday, 22 October 2020

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<tr>
<th>Time</th>
<th>Stream 1</th>
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<td>Opening Ceremony</td>
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<td>Steven Boonen Lecture</td>
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<td>Concurrent Oral Presentations 1: Clinical / Public Health: Secondary</td>
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<td>Osteoporosis and osteoporosis management</td>
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<td>10:00</td>
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<td>Plenary Symposium 1 WIN: What is new</td>
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<td>Educational Symposium / Expert Forum: Microbiota and Bone</td>
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<td>Plenary Symposium 2: Fundamentals and Clinical</td>
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<td>Consequences of Bone Marrow Adiposity</td>
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<td>Break / ePosters / Exhibition Visits / Coffee Shop</td>
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<td>13:00</td>
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<td>ECTS/ASBMR Debate</td>
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<td>This House Believes that Absolute Risk</td>
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<td>Thresholds for Intervention against</td>
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<td>High Imminent Fracture Risk Should Be Age Dependent</td>
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<td>Workshop 1: Deep Learning</td>
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<td>Approaches for Estimation of Fracture Risk through Artificial</td>
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<td>Workshop 1: Bone Marrow Environment</td>
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- **Clinical/Public Health**
- **Basic/Translational**
- **Clinical & Basic**
- **Industry Sponsored**
# Programme Overview

**Friday, 23 October 2020**

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<th>Time</th>
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<td>Concurrent Oral Poster Presentations 1: Clinical/Public Health&lt;br&gt;p. 27</td>
<td>Concurrent Oral Poster Presentations 1: Basic/Translational&lt;br&gt;p. 28</td>
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<td>Concurrent Oral Presentations 2: Clinical / Public Health: Bone strength and structure&lt;br&gt;p. 29</td>
<td>Concurrent Oral Presentations 2: Basic/Translational: Genetic and molecular control of bone cells&lt;br&gt;p. 30</td>
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<td>Plenary Oral Presentations 1: Cross Talk between Bone and Metabolism&lt;br&gt;p. 30</td>
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<td>Educational Symposium / Expert Forum: Tumour-Induced Osteomalacia and Other Hypophosphatemic Disorders&lt;br&gt;p. 31</td>
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<td>Corporate Satellite Symposium&lt;br&gt;p. 109</td>
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<td>Plenary Symposium 3: Bone and Prostate Cancer&lt;br&gt;p. 32</td>
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<td>Workshop 2: Secondary Osteoporosis: Is it truly reversible?&lt;br&gt;p. 33</td>
<td>Workshop 2: Stem Cells and Anabolic Strategies for Bone Repair and Regeneration&lt;br&gt;p. 33</td>
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<td>19:00</td>
<td>Mini Corporate Symposium&lt;br&gt;p. 111</td>
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*All times indicated are Central European Summer Time (CEST).*

**Legend:**
- Clinical/Public Health
- Basic/Translational
- Clinical & Basic
- Industry Sponsored
## Programme Overview

**Saturday, 24 October 2020**

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<td>11:00</td>
<td>Plenary Oral Presentations 3: Osteoporosis: From cause to treatment</td>
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<td>Plenary Symposium 4: Insights from Outside: Muscle &amp; Bone Plenary Oral</td>
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<tr>
<td>15:00</td>
<td>Big Clinical Session: Personalized Approach in Osteoporosis Therapy</td>
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<tr>
<td>16:00</td>
<td>Workshop 3: Reduced Bone Mass in Children and Adults with common Genetic Syndromes: Transition from Childhood to Adulthood</td>
<td>Workshop 3: Extracellular Vesicles: From the Basics to Clinical Application</td>
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<td>16:30</td>
<td>Break / ePosters / Exhibition Visits</td>
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<td>17:00</td>
<td>Poster Focus Clinical/Public Health</td>
<td>Poster Focus Basic/Translational</td>
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<td>18:00</td>
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All times indicated are Central European Summer Time (CEST).
Call for Papers

Forthcoming special topic issue in CTO in 2020:

1. Epithelial Mesenchymal Transition

Epithelial Mesenchymal Transition (EMT) sits at the intersection between developmental and cancer biology. CTO has been a strong proponent for EMT research in the past and this special issue will focus on recent conceptual and technological advance in this field. We welcome submissions on all aspects of EMT research.

2. Cell-, Tissue- and Organs-on-a-Chip: Human Models of Human Disease

This special issue solicits research articles, reviews, and opinions focused on development of novel Cell-, Tissue- and Organs-on-a-chip models and Microphysiological Systems.

3. Bioartificial Organs

This special issue solicits research articles, reviews, and opinions focused on the recent advances of bioartificial organs.

4. Prenatal Origin of Adult Health and Disease (POAHD)

Prompted by recent evidence from divergent areas of development and clinical medicine this special topic issue addresses a variation on the 25-year-old theme of “fetal origin of adult onset disease (FOAD)”; the issue solicits original research, reviews and opinions on all aspects of prenatal and pre-conception programming of adult health and disease.

5. Current Aspects of Cell Death in Development

Elimination of cells is an essential step of both early and late development and may – according to recent evidence obtained mainly in oncology – fall into various categories of apoptosis, necrosis and autophagy. This special issue solicits research articles, reviews, and opinions focused on classical (and new) cases of cell death during development of, for example, digits, gonads, trophoblast, and brain.

For submission or any queries, please visit our website: www.karger.com/cto
# Programme Overview

**Thursday, 22 October 2020**

<table>
<thead>
<tr>
<th>Time</th>
<th>Stream 1</th>
<th>Stream 2</th>
<th>ePosters</th>
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<tr>
<td>07:30</td>
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<tr>
<td>08:00</td>
<td>Opening Ceremony</td>
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<td>Steven Boonen Lecture</td>
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<td>09:00</td>
<td>Concurrent Oral Presentations 1: Clinical/</td>
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<td></td>
<td>Public Health: Secondary Osteoporosis and osteoporosis</td>
<td>Translational: Skeletal environment pathologies</td>
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<td>Plenary Symposium 1 WIN: What is new</td>
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<td>Educational Symposium / Expert Forum:</td>
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<td>Microbiota and Bone</td>
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<td>Plenary Symposium 2: Fundamentals and Clinical</td>
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<td>Consequences of Bone Marrow Adiposity</td>
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<td>ECTS/ASBMR Debate</td>
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<td>This House Believes that Absolute Risk</td>
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<td>Thresholds for Intervention against High</td>
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<td>Imminent Fracture Risk Should Be Age</td>
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<td>Workshop 1: Bone Marrow Environment</td>
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All times indicated are Central European Summer Time (CEST).

Clinical/Public Health • Basic/Translational • Clinical & Basic • Industry Sponsored
Scientific Programme

Thursday, 22 October 2020

08.00 – 08.30  ECTS Events

Opening Ceremony
Chairs: Anna Teti (Italy)
Bo Abrahamsen (Denmark)
Martine Cohen-Solal (France)

08.00  ECTS Strategic Plan and Activities
Bo Abrahamsen (Denmark)

08.10  Congress President’s Welcome Remarks and #ECTS2020 Digital Programme
Anna Teti (Italy)

08.22  Local Organising Committee Chair’s Welcoming Remarks on behalf of the French National Societies
Martine Cohen-Solal (France)

08.30 – 09.00  Clinical/Public Health

Steven Boonen Lecture
Chairs: Yasemin Alanay (Turkey)
Anna Teti (Italy)

08.30  Osteoporosis genetics: The value of rare diseases in osteoporosis research
Outi Mäkitie (Finland)

09.00 – 09.15  Break / Visting ePosters / Exhibition Visits

09.15 – 10.15  Clinical/Public Health

Concurrent Oral Presentations 1: Clinical / Public Health:
Secondary Osteoporosis and osteoporosis management
Chairs: Núria Guanabens (Spain)
Sekib Sokolovic (Bosnia and Herzegovina)

09.15  Risk of acute myocardial infarction among new users of Bisphosphonates: a nested case-control study
Ramón Mazzucchelli (Spain)

09.22  Denosumab 10-year simulation of bone remodeling in human biopsies
Duncan C Tourolle (Switzerland)
09.29  Bone material strength index as measured by impact microindentation in vivo is altered in patients with primary hyperparathyroidism
Natasha Appelman-Dijkstra (The Netherlands)

09.36  Treatments of osteoporosis increase bone material strength index in patients with low bone mass
Natasha Appelman-Dijkstra (The Netherlands)

09.43  Stable BMD after pregnancy and breast-feeding among women in their mid-thirties
Fiona E McGuigan (Sweden)

09.50  Discussion

09.15 – 10.15  Basic/Translational
Concurrent Oral Presentations 1: Basic/Translational:
Skeletal environment pathologies
Chairs: Anne Blangy (France)
        Nerea Alonso (United Kingdom)

09.15  Parallel platform for rapid functional screening of Osteoarthritis associated genes
Erika Kague (United Kingdom)

09.22  Mice harbouring the minor allele of the human DIO2 polymorphism (Thr92Ala) are protected against osteoarthritis
Natalie C Butterfield (United Kingdom)

09.29  TAK1 inhibition effectively suppresses NLRP3 inflammasome-mediated inflammation and osteoclastic bone resorption in rheumatoid arthritis
Hirofumi Tenshin (Japan)

09.36  Altered osteo-angiogenic development of fetal endochondral bones impacts hematopoietic stem cell homing during embryogenesis and B cell production in postnatal life
Marion Mesnieres (Belgium)

09.43  Roles of Notch 1, Notch2 and CXCR4 in in-bone Breast Cancer (BrCa) cellular dormancy
Antonio Maurizi (Italy)

09.50  Discussion

10.15 – 11.00  Break / Visit ePosters / Exhibition Visits / Coffee Shop
11.00 – 12.00  **Clinical & Basic**  
**Plenary Symposium 1 WIN: What is new**  
*Chairs: Carmen Huesa (United Kingdom)  
Willem Lems (The Netherlands)*  

11.00  New basic science technologies  
*Peter Croucher (Australia)*  

11.20  New therapeutic strategies  
*Luigi Gennari (Italy)*  

11.40  Discussion  

12.00 – 12.30  Break / ePosters / Exhibition Visits / Coffee Shop  

12.30 – 13.30  **Clinical/Public Health**  
**Educational Symposium / Expert Forum: Microbiota and Bone**  
*Chairs: Martine Cohen-Solal (France)  
Nicolas Bonnet (Switzerland)  
Marie Noelle Horcajada (Switzerland)*  

12.30  Gut-Bone signalling: Is microbiota the immunological link?  
*Laura McCabe (United States)*  

12.50  Regulation of bone by microbiota: From mice to humans  
*Roberto Pacifici (United States)*  

13.10  Discussion  
*Supported by an educational grant from industry*  

13.30 – 13.45  Break / ePosters / Exhibition Visits  

13.45 – 15.15  **Industry Session**  
**Corporate Satellite Symposium 1**  
*See page 107*  

15.15 – 15.30  Break / ePosters / Exhibition Visits / Coffee Shop
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15.30 – 16.30  Clinical & Basic
Plenary Symposium 2: Fundamentals and Clinical Consequences of Bone Marrow Adiposity
Joint session with BMAS (Bone Marrow Adiposity Society)
Chairs: Claudine Blin (France)
Christophe Chauveau (France)

15.30  Origin, fate, characteristics of bone marrow adiposity and role in skeletal diseases
Mara Riminucci (Italy)

15.50  Clinical implications of bone marrow adiposity in health and disease
Cliff J. Rosen (United States)

16.10  Discussion

16.30 – 16.45  Break / ePosters / Exhibition Visits

16.45 – 17.45  Clinical/Public Health
ECTS/ASBMR Debate This House Believes that Absolute Risk Thresholds for Intervention against High Imminent Fracture Risk Should Be Age Dependent
Chairs: Anna Teti (Italy)
Sundeep Khosla (United States)
Christian Meier (Switzerland)

16.45  Introduction by the chairs and vote

16.55  Debate: For the motion
Christian Roux (France)

17.10  Debate: Against the motion
John Eisman (Australia)

17.25  Comments and questions from the audience

17.35  Rebuttal

17.45  Vote

17.50  Debate closed

17.45 – 18.00  Break / ePosters / Exhibition Visits

ECTS 2020
Final Programme
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22 October 2020
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<tr>
<th>Time</th>
<th>Live Stream 1</th>
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<td><strong>Clinical/Public Health</strong></td>
<td><strong>Basic/Translational</strong></td>
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<tr>
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<td>Workshop 1: Deep Learning Approaches for Estimation of</td>
<td>Workshop 1: Bone Marrow Environment</td>
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<td>Fracture Risk through Artificial Intelligence</td>
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<td><em>Chairs:</em> Andrew Burghardt <em>(United States)</em></td>
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<td><em>Chairs:</em> Cliff J. Rosen <em>(United States)</em></td>
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<td>*Ling Oei <em>(The Netherlands)</em></td>
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<tr>
<td>18.00</td>
<td>Artificial intelligence in medicine</td>
<td>The bone marrow microenvironment</td>
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<td>*Franz Kainberger <em>(Austria)</em></td>
<td>*Emmanuelle Passegué <em>(United States)</em></td>
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<td>18.20</td>
<td>Deep learning approaches for fracture risk estimation</td>
<td>Dissecting the bone marrow mesenchymal cell lineage by single cell genomic analysis and in vivo lineage-tracing approach</td>
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<td>*Christel Daniel <em>(France)</em></td>
<td>*Noriaki Ono <em>(United States)</em></td>
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**Programme Overview**

**Friday, 23 October 2020**

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<th>Time</th>
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<td>Concurrent Oral Poster Presentations 1: Basic/Translational p. 28</td>
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<tr>
<td>09:30</td>
<td>Concurrent Oral Presentations 2: Clinical / Public Health: Bone strength and structure p. 29</td>
<td>Concurrent Oral Presentations 2: Basic/Translational: Genetic and molecular control of bone cells p. 30</td>
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<td>11:00</td>
<td>Plenary Oral Presentations 1: Cross Talk between Bone and Metabolism p. 30</td>
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<td>13:00</td>
<td>Educational Symposium / Expert Forum: Tumour-Induced Osteomalacia and Other Hypophosphatemic Disorders p. 31</td>
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<td>Corporate Satellite Symposium</td>
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<td>16:00</td>
<td>Plenary Symposium 3: Bone and Prostate Cancer p. 32</td>
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<td>17:00</td>
<td>Plenary Oral Presentations 2: Osteoblasts and Bone Regulators p. 32</td>
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<tr>
<td>18:00</td>
<td>Workshop 2: Secondary Osteoporosis: Is it truly reversible? p. 33</td>
<td>Workshop 2: Stem Cells and Anabolic Strategies for Bone Repair and Regeneration p. 33</td>
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<td>Mini Corporate Symposium</td>
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*All times indicated are Central European Summer Time (CEST).*

**Legend:**
- Clinical/Public Health
- Basic/Translational
- Clinical & Basic
- Industry Sponsored
Scientific Programme

Friday, 23 October 2020

08.00 – 09.00 Clinical/Public Health

Concurrent Oral Poster Presentations 1 – Clinical/Public Health

Chairs: Athanasios Anastasilakis (Greece)
Luigi Gennari (Italy)

08.00
P008
Relatively higher bone formation markers during puberty are correlated with more bone mass accrual independent of longitudinal growth in boys
Thiberiu Banica (Belgium)

08.03
P223
Associations between prenatal indicators of mechanical loading and proximal femur shape: Findings from the UK Avon Longitudinal Study of Parents and Children (ALSPAC)
Alex Ireland (United Kingdom)

08.06
P121
Zoledronic acid is not equally potent on osteoclasts generated from different individuals – osteoclasts from smokers are less sensitive
Kent Søe (Denmark)

08.09
P280
Systematic review and quality appraisal of cost-effectiveness analyses of drugs for postmenopausal osteoporosis
Md Azharuddin (India)

08.12
P276
Fracture rates in patients discontinuing alendronate treatment in real-life: A pharmaco-epidemiological study
Anne Sophie Sølling (Denmark)

08.15
P005
Serum biomarkers for antiresorptives-related osteonecrosis of the jaw: In vivo and clinical validation studies
Jinwoo Kim (Republic of Korea)

08.18
P006
The relationship between bone regulatory markers and bone turnover in renal osteodystrophy
Syazrah Salam (United Kingdom)

08.21
P269
Comparison of treatment responder rates for three oral bisphosphonates: The TRIO study
Margaret A Paggiosi (United Kingdom)

08.24
P313
A novel HSPG2 splice site mutation causing Schwartz-Jampel syndrome is associated with an impaired lacunocanalicular system
Simon von Kroge (Germany)

08.27
P016
Diurnal and weekly variability in serum levels of bone-related circulating microRNAs
Patryk Zarecki (United Kingdom)
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<tr>
<th>Time</th>
<th>Title</th>
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<tbody>
<tr>
<td>08.30</td>
<td>Osteocyte lacunae characteristics in iliac crest bone samples of aged adults</td>
<td>Stéphane Blouin (Austria)</td>
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<td>08.33</td>
<td>How the nanoscale composition and collagen fiber orientation affect osteonal mechanical competence</td>
<td>Kilian Stockhausen (Germany)</td>
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<td>08.36</td>
<td>Discussion</td>
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<td><strong>Chairs:</strong> Amélie Coudert (France)</td>
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<td>Katherine Staines (United Kingdom)</td>
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<td>08.00</td>
<td>Transcriptome analysis reveals potential biomarkers of CLCN7-dependent Autosomal Dominant Osteopetrosis Type 2 (ADO2)</td>
<td>Iona Norwood (Italy)</td>
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<td>08.03</td>
<td>Extracellular vesicles are new bone turnover diagnostic tools to discriminate osteoporosis induced by estrogen deprivation or by unloading</td>
<td>Alfredo Cappariello (Italy)</td>
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<td>08.06</td>
<td>RNA-based bone histology and histomorphometry</td>
<td>Sergey Leikin (United States)</td>
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<td>08.09</td>
<td>Advanced 3D-confocal microscopy of cleared mouse bones reveals the architecture and quantitative interrelationship of the stromal and vascular compartments in bone</td>
<td>Nicolas Peredo (Belgium)</td>
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<tr>
<td>08.12</td>
<td>Glutamine metabolism in osteoprogenitors governs bone mass accrual and PTH-induced bone anabolism</td>
<td>Steve Stegen (Belgium)</td>
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<td>08.15</td>
<td>Evidence that teriparatide regulates osteoclast differentiation and survival in mice via Cxcr4 activity</td>
<td>Beatriz Larraz-Prieto (United Kingdom)</td>
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<td>08.18</td>
<td>Mice with deletion of PKA regulatory subunit1A in osteoblasts show severe bone pathology</td>
<td>Carole Le Henaff (United States)</td>
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<td>08.21</td>
<td>Secondary ossification center protects growth plate chondrocytes from mechanical stress</td>
<td>Meng Xie (Sweden)</td>
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<td>08.24</td>
<td>Inhibition of HMGA2 abolishes articular cartilage regeneration induced by Lin28a in mice</td>
<td>Zohra Bouchemail (France)</td>
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| 08.27 | Probiotics prevent cartilage damage and progression of osteoarthritis in mice  
Antonia Sophocleous (Cyprus) |
| 08.30 | Synovial cells secrete a temperature-stable protein that inhibits hypertrophic differentiation and induces articular cartilage differentiation of chondrocytes in vitro  
Marta Baroncelli (Sweden) |
| 08.33 | Discussion |
| 09.00 – 09.15 | Break / ePosters / Exhibition Visits |
| 09.15 – 10.15 | **Clinical/Public Health**  
**Concurrent Oral Presentations 2: Clinical/Public Health: Bone strength and structure**  
*Chairs: Elizabeth Winter (The Netherlands)  
Judit Donáth (Hungary)* |
| 09.15 | Sphingosine 1-phosphate is a likely important factor exacerbating vascular calcification in chronic kidney disease  
Leyre Brizuela (France) |
| 09.22 | Muscle density is better than bone density in the discrimination of incident hip fracture: a propensity score matching study  
Ling Wang (China) |
| 09.29 | Bone mass, structure and turnover in EOOP patients with LRP5/LRP6 mutations – Case series of 33 patients  
Julian Stürznickel (Germany) |
| 09.36 | Bone peripheral microarchitecture in type 1 diabetes with and without neuropathy; a cross-section study  
Tatiane Vilaca (United Kingdom) |
| 09.43 | Cortical porosity does not predict incident fractures in postmenopausal women  
Frida Igland Nissen (Norway) |
| 09.50 | Bone matrix mineralization increases with age and remains elevated after Teriparatide treatment in WNT1 or PLS3 mutation-related low-turnover osteoporosis: A transiliac bone biopsy study  
Nadja Fratzl-Zelman (Austria) |
<p>| 09.57 | Discussion |</p>
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<th>Concurrent Oral Presentations 2: Basic/Translational: Genetic and molecular control of bone cells</th>
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<td>09.15 – 10.15</td>
<td><strong>Basic/Translational</strong></td>
<td><strong>Live Stream 2</strong></td>
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| 09.15 | COP31 | Mice carrying a ubiquitous R235W mutation of Wnt1 display a bone-specific phenotype  
Timur Alexander Yorgan (Germany) |
| 09.22 | COP32 | Mitoguardin-2 deficiency results in severe osteoporosis  
Davide Komla-Ebri (United Kingdom) |
| 09.29 | COP33 | Novel RPL13 variants and evidence for incomplete penetrance in a human ribosomopathy with spondyloepimetaphyseal dysplasia  
Alice Costantini (Sweden) |
| 09.36 | COP34 | Ablation of Slc20a1/PitT1 and Slc20a2/PiT2 in mice in the osteogenic lineage causes dentin dysplasia and formation of ectopic enamel islands  
Clemens Bergwitz (United States) |
| 09.43 | COP35 | Postnatal expression of DLX5 and DLX6 promotes final osteoblast differentiation and the maintenance of cortical bone  
Morgane Bourmaud (France) |
| 09.50 | COP36 | New Ifitm5 S42L mouse model for atypical type VI OI connects types V and VI Osteogenesis Imperfecta  
Gali Guterman-Ram (United States) |
| 09.57 | | Discussion |

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<td><strong>Clinical &amp; Basic</strong></td>
<td><strong>Live Stream 1</strong></td>
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| 11.00 | PLO07 | Plasma sclerostin is associated with visceral adipose tissue but not subcutaneous adipose tissue in men and women in the Framingham Study  
Douglas Kiel (United States) |
11.07 KIAA1199 (CEMIP), a novel secreted factor from bone and bone marrow influences body composition and metabolism by regulating bone and fat 
*Li Chen (Denmark)*

11.14 α-E-catenin deletion in skeletal stem and progenitor cells (SSPCs) increases their adipogenic potential and protects against diet- or age-induced obesity and hyperglycemia 
*Karen De Samblancx (Belgium)*

11.21 Skin autofluorescence, a non-invasive biomarker for advanced glycation end-products, is associated with Sarcopenia: The Rotterdam study 
*Komal Waqas (The Netherlands)*

11.28 Cholesterol promotes myeloma cell viability and increases bone marrow myeloma tumour burden in vivo 
*Beatriz Gamez (United Kingdom)*

11.35 PTH-induced bone anabolism promotes systemic breast cancer growth and metastasis 
*Yetki Aslan (France)*

11.42 Discussion

12.00 – 12.30 Break / ePosters / Exhibition Visits / Coffee Shop

12.30 – 13.30 **Clinical/Public Health** 
*Live Stream 1*

**Educational Symposium/Expert Forum: Tumour-Induced Osteomalacia and Other Hypophosphatemic Disorders**

*Chairs:* Jean Jacques Body (Belgium)  
Sylvain Provot (France)

12.30 The diagnostic pathway 
*Salvatore Minisola (Italy)*

12.50 The therapeutic approaches, including an interactive case-based discussion 
*Karl Insogna (United States)*

13.10 Discussion

*Supported by an educational grant from industry*

13.30 – 13.45 Break / ePosters / Exhibition Visits
13.45 – 15.15  Industry Session
Corporate Satellite Symposium 2
See page 109

15.15 – 15.30  Break / ePosters / Exhibition Visits / Coffee Shop

15.30 – 16.30  Clinical & Basic
Plenary Symposium 3: Bone and Prostate Cancer
Joint session with CABS (Cancer and Bone Society)
Chairs: Claire Edwards (United Kingdom)
       Cyrille Confavreux (France)

15.30  Regulation of the metastatic phenotype by the bone microenvironment: Prostate cancer models
       Russell Taichman (United States)

15.50  Prostate cancer: Prevention of fracture risk during androgen deprivation therapy and prevention of bone complications in the metastatic setting.
       Jean Jacques Body (Belgium)

16.10  Discussion

16.30 – 16.45  Break / ePosters / Exhibition Visits

16.45 – 17.45  Clinical & Basic
Plenary Oral Presentations 2: Osteoblasts and Bone Regulators
Chairs: Andre van Wijnen (United States)
       Clemens Bergwitz (United States)

16.45  The loss of Profilin 1 is associated with early-onset Paget’s disease of bone degenerating into osteosarcoma
       Federica Scotto di Carlo (Italy)

16.52  Slc38a10 is a novel regulator of osteoblastic bone formation
       Andrea S Pollard (United Kingdom)

16.59  Bone tissue in murine atypical type VI osteogenesis imperfecta has changes in vascular pores and matrix organization, plus classic OI hypermineralization
       Ghazal Hedjazi (Austria)
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>17.06</td>
<td>RhoA regulates the quiescence and cell fate of skeletal stem and progenitor cells (SSPCs)</td>
<td>Dana Trompet (Belgium)</td>
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<tr>
<td>17.13</td>
<td>Unique serum microRNA profile in monogenic osteoporosis caused by PLS3 mutations</td>
<td>Riikka Mäkitie (Finland)</td>
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<td>17.20</td>
<td>Large-scale genomics and proteomics to identify novel circulating biomarkers for bone density</td>
<td>Sirui Zhou (Canada)</td>
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<tr>
<td>17.27</td>
<td>Discussion</td>
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<td>17.45 – 18.00</td>
<td>Break / ePosters / Exhibition Visits</td>
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<tr>
<td>18.00 – 19.00</td>
<td>Clinical/Public Health Live Stream 1 Workshop 2: Secondary Osteoporosis: Is it truly reversible?</td>
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<tr>
<td>18.00</td>
<td>Primary hyperparathyroidism, celiac disease, thyrotoxicosis</td>
<td>Heide Siggelkow (Germany)</td>
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<tr>
<td>18.20</td>
<td>Pregnancy and breast cancer associated osteoporosis</td>
<td>Peyman Hadji (Germany)</td>
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<tr>
<td>18.40</td>
<td>Discussion</td>
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<tr>
<td>18.00 – 19.00</td>
<td>Basic/Translational Live Stream 2 Workshop 2: Stem Cells and Anabolic Strategies for Bone Repair and Regeneration Joint session with TERMIS (Tissue Engineering and Regenerative Medicine International Society)</td>
<td></td>
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<tr>
<td>18.00</td>
<td>Skeletal stem cells Hox gene function in growth, homeostasis and repair</td>
<td>Deneen Wellik (United States)</td>
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<tr>
<td>18.20</td>
<td>Re-engineering developmental processes for bone regeneration</td>
<td>Ivan Martin (Switzerland)</td>
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<tr>
<td>18.40</td>
<td>Discussion</td>
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</tbody>
</table>
19.00 – 20.00  Industry Session
       Mini Corporate Symposium 1
       See page 111

19.00 – 20.00  Industry Session
       Mini Corporate Symposium 2
       See page 111
See you in Helsinki
6-10 May 2022

www.ects2022.org

Photo Credit: Helsinki Marketing, a company owned by the City of Helsinki.
Programme Overview

Saturday, 24 October 2020

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<td>07:30</td>
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<tr>
<td>08:00</td>
<td>Concurrent Oral Poster Presentations 2: Clinical/Public Health</td>
<td>Concurrent Oral Poster Presentations 2: Basic/Translational</td>
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<td>Break / ePosters / Exhibition Visits</td>
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<tr>
<td>09:00</td>
<td>Concurrent Oral Presentations 3: Clinical / Public Health: Novel targets in managing bone diseases</td>
<td>Concurrent Oral Presentations 3: Basic/Translational: Mechanisms of osteoporosis</td>
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<td>Break / ePosters / Exhibition Visits / Coffee Shop</td>
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<tr>
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<td>Plenary Oral Presentations 3: Osteoporosis: From cause to treatment</td>
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<td>Break / ePosters / Exhibition Visits / Coffee Shop</td>
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<td>12:30</td>
<td>Plenary Symposium 4: Insights from Outside: Muscle &amp; Bone</td>
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<td>Break / ePosters / Exhibition Visits</td>
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<td>13:30</td>
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<td>16:00</td>
<td>Big Clinical Session: Personalized Approach in Osteoporosis Therapy</td>
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<td>Break / ePosters / Exhibition Visits</td>
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<td>17:00</td>
<td>Poster Focus Clinical/Public Health</td>
<td>Poster Focus Basic/Translational</td>
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<tr>
<td>18:00</td>
<td>Workshop 3: Reduced Bone Mass in Children and Adults with common Genetic Syndromes: Transition from Childhood to Adulthood</td>
<td>Workshop 3: Extracellular Vesicles: From the Basics to Clinical Application</td>
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All times indicated are Central European Summer Time (CEST).

Scientific Programme

Saturday, 24 October 2020

08.00 – 09.00  Clinical/Public Health  
Concurrent Oral Poster Presentations 2 – Clinical/Public Health

Chairs: Xavier Nogués Solan (Spain)  
Andrea Palermo (Italy)

08.00  Using machine learning approaches and genomic data for fracture risk prediction in the US older men
Qing Wu (United States)

08.03  Role of bone nano-mechanics in age-related fragility fractures
Richard Abel (United Kingdom)

08.06  In type 2 diabetes mellitus collagen fibril plasticity is altered along with higher glyco-oxydative damage and non-osteoporotic bone mineral density
Eva Maria Wölfel (Germany)

08.09  Hyperglycaemia is not associated with higher volumetric bone mineral density in a Chinese health check-up cohort
Ling Wang (China)

08.12  Association between muscle strength and body composition in osteoporotic patients with vertebral fractures
Larisa Marchenkova (Russian Federation)

08.15  Opposite associations for trabecular and cortical volumetric bone mineral density with Coronary Artery Calcification score: the SCAPIS Pilot study
Thomas Funck-Brentano (France)

08.18  Trabecular bone score in subjects with normocalcemic hyperparathyroidism
Anda Mihaela Naciu (Italy)

08.21  The effectiveness of the Fracture Risk Evaluation Model (FREM) in predicting major osteoporotic fractures and hip fractures: A register-based cohort study
Michael Kriegbaum Skjødt (Denmark)

08.24  A natural history study in patients with ENPP1 deficiency
Gus Khursigara (United States)

08.27  Causal assessment of the association between bone mineral density and the risk of dementia
Samuel Ghatan (The Netherlands)
08.30  Lipocalin-2 (LCN2) increases after acute exercise but is dispensable for muscle physiology
Marco Ponzetti (Italy)

08.33  Interest of texture analysis and neural networks for the characterization of knee osteoarthritis radiographic progression in OAI and MOST cohorts
Khac Lan Nguyen (France)

08.36  Discussion

08.00 – 09.00  Basic/Translational
Concurrent Oral Poster Presentations 2 – Basic/Translational
Chairs: Ursula Heilmeier (Switzerland) Yuuki Imai (Japan)

08.00  PiT2/SLC20A2: A new regulator of the bone marrow adipose tissue homeostasis?
Giulia Frangi (France)

08.03  Impaired bone healing in type 2 diabetes is caused by defective bone microenvironment functions of skeletal progenitor cells
Florence Figeac (Denmark)

08.06  Low protein diet compromises the recovery of lactation-induced bone loss in female mouse dams with no effects on skeletal muscles
Ioannis Kanakis (United Kingdom)

08.09  A novel laser-induced lesion paradigm to image osteoblast – immune cell interactions in vivo
Karina Geurtzen (Germany)

08.12  Thermoneutral temperature mitigates hind-limb unloading-induced bone loss by preserving energetic metabolism
Laura Peurière (France)

08.15  How the skeleton adapts to an extremely short lifespan: Revealing compositional and biomechanical features of the bone matrix in the shortest-lived vertebrate model killifish (N.furzeri)
Imke A. K. Fiedler (Germany)

08.18  Fgfr3 gain-of-function mutation impacts bone homeostasis in hypochondroplasia mouse model
Léa Loisay (France)

08.21  ENPP1 regulates bone mass via an unidentified catalytically independent mechanism
Demetrios Braddock (United States)

08.24  Preventative metformin treatment increases myeloma tumour burden and bone disease in vivo
Beatriz Gamez (United Kingdom)
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<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>08.27</td>
<td>Pyridazinone scaffold-based molecules decrease osteosarcoma cells growth</td>
<td>Aurélie Moniot (France)</td>
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<tr>
<td>08.30</td>
<td>RANKL promotes the expansion of mammary epithelial cells in osteoporotic TgRANKL mouse models</td>
<td>Eleni Douni (Greece)</td>
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<tr>
<td>08.33</td>
<td>Discussion</td>
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<td>09.00 – 09.15</td>
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<td>09.15 – 10.15</td>
<td>Clinical/Public Health</td>
<td>Live Stream 1</td>
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<td>Concurrent Oral Presentations 3: Clinical / Public Health: Novel targets in managing bone diseases</td>
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<td>Chairs: Jessica Pepe (Italy) Olivier Peyruchaud (France)</td>
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<tr>
<td>09.15</td>
<td>Prolongation of the reversal-resorption phase leads to increased cortical porosity in men and women</td>
<td>Bilal M. El-Masri (Denmark)</td>
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<tr>
<td>09.22</td>
<td>Leveraging data from bivariate genome-wide association meta-analysis to unravel novel pleitropic pathways of bone-muscle crosstalk</td>
<td>Katerina Trajanoska (The Netherlands)</td>
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<tr>
<td>09.29</td>
<td>Membrane palmitoylated protein 7 (MPP7) and anaphase promoting complex subunit 1 (ANAPC1) associate with bone remodelling and osteoporosis</td>
<td>Nika Lovšin (Slovenia)</td>
</tr>
<tr>
<td>09.36</td>
<td>Long-term safety in adults with X-linked Hypophosphatemia (XLH) treated with Burosumab, a fully human monoclonal antibody against FGF23: Final results of a phase 3 trial</td>
<td>Peter Kamenický (France)</td>
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<tr>
<td>09.45</td>
<td>Highlighting the bone cells alterations in Gorham-Stout Disease</td>
<td>Michela Rossi (Italy)</td>
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<tr>
<td>09.52</td>
<td>LIGHT as regulator of bone homeostasis during osteolytic bone metastasis formation in non-small cell lung cancer patients</td>
<td>Ilaria Roato (Italy)</td>
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<tr>
<td>09.57</td>
<td>Discussion</td>
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</table>
09.15 – 10.15  **Basic/Translational**  
**Concurrent Oral Presentations 3: Basic/Translational: Mechanisms of osteoporosis**  
*Chairs: Eric Hay (France)  
Melanie Haffner-Luntzer (Germany)*

09.15  
**COP07**  
TGF-β induced senescence is a novel therapeutic target for treating osteoporosis in Gerodermia Osteodysplastica  
*Wing Lee Chan (Germany)*

09.22  
**COP08**  
Protective effect of Saccharomyces boulardii CNCM I-745 on the development of inflammatory osteoclasts and inflammatory bone destruction  
*Maria-Bernadette Madel (France)*

09.29  
**COP09**  
Enpp1 enzyme replacement restores bone mass in murine model of Enpp1 associated osteoporosis  
*Demetrios Braddock (United States)*

09.36  
**COP10**  
Loss of glucocorticoid rhythm induces an osteoporotic phenotype in mice  
*Elizabeth Winter (The Netherlands)*

09.43  
**COP11**  
Protein Kinase G II signaling is osteoprotective in dexamethasone-treated mice  
*Shyamsundar Pal China (United States)*

09.50  
**COP12**  
Delayed fracture healing in Mmp10 (Stromelysin 2) knockout mice: molecular and cellular mechanism  
*Froilán Granero-Moltó (Spain)*

09.57  
**Discussion**

10.15 – 11.00  **Break / ePosters / Exhibition Visits / Coffee Shop**

11.00 – 12.00  **Clinical & Basic**  
**Plenary Oral Presentations 3: Osteoporosis: From cause to treatment**  
*Chairs: Bram van der Eerden (The Netherlands)  
John Eisman (Australia)*

11.00  
**PLO01**  
Irisin treatment prevents dysregulation of osteoblast differentiation and activity in 3D in vitro bone cocultures exposed to microgravity during the space flight CRS-14 mission  
*Graziana Colaianni (Italy)*
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<tr>
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<th>Session</th>
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<tbody>
<tr>
<td>11.07</td>
<td>Additive effect of Act-RIIA-mFc and PTH in the prevention of disuse-</td>
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<tr>
<td>PLO02</td>
<td>induced bone loss&lt;br&gt;&lt;em&gt;Mikkel Bo Brent (Denmark)&lt;/em&gt;</td>
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<td>11.14</td>
<td>Older men with sarcopenia have rapid progression of abdominal aortic</td>
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<td>PLO03</td>
<td>calcification – the prospective MINOS study&lt;br&gt;&lt;em&gt;Pawel Szulc (France)&lt;/em&gt;</td>
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<td>11.21</td>
<td>Bone resorption in mouse models of mitochondrial neurological diseases</td>
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<tr>
<td>PLO04</td>
<td>&lt;em&gt;Eleni Douni (Greece)&lt;/em&gt;</td>
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<td>11.28</td>
<td>Regular proton-pump inhibitor intake is associated with deterioration of</td>
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<td>PLO05</td>
<td>tibial bone microarchitecture and strength in older patients as assessed</td>
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<td>via high-resolution peripheral quantitative computed tomography&lt;br&gt;&lt;em&gt;Ursula Heilmeier (Switzerland)&lt;/em&gt;</td>
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<td>11.35</td>
<td>Romosozumab improves lumbar spine BMD and bone strength greater than</td>
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<td>PLO06</td>
<td>alendronate as assessed by quantitative computed tomography and finite</td>
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<td>element analysis in the ARCH trial&lt;br&gt;&lt;em&gt;Cesar Libanat (Belgium)&lt;/em&gt;</td>
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<td>11.42</td>
<td>Discussion</td>
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<td>12.00 – 12.30</td>
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<tr>
<td>12.30 – 13.30</td>
<td><strong>Clinical &amp; Basic</strong>&lt;br&gt;&lt;strong&gt;Plenary Symposium 4: Insights from Outside: Muscle &amp; Bone Plenary Oral&lt;/strong&gt;&lt;br&gt;&lt;em&gt;Chairs: Nadia Rucci (Italy)&lt;br&gt;Nicolas Bonnet (Switzerland)&lt;/em&gt;&lt;br&gt;12.30 Myokines following mitochondrial dysfunction&lt;br&gt;&lt;em&gt;Marco Sandri (Italy)&lt;/em&gt;&lt;br&gt;12.50 Muscle-Organ crosstalk: Role of myokines&lt;br&gt;&lt;em&gt;Bente Klarlund Pedersen (Denmark)&lt;/em&gt;&lt;br&gt;13.10 Discussion</td>
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<td>13.30 – 13.45</td>
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13.45 – 15.15  Industry Session
Corporate Satellite Symposium 3
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15.15 – 15.30  Break / ePosters / Exhibition Visits / Coffee Shop

15.30 – 16.30  Clinical/Public Health
Big Clinical Session: Personalized Approach in Osteoporosis Therapy
Chairs: Bo Abrahamsen (Denmark)
Douglas Kiel (United States)

15.30  When and how long to treat? When to switch?
Sundeep Khosla (United States)

15.50  When to pause? How to follow up and monitor after discontinuation?
Richard Eastell (United Kingdom)

16.10  Discussion

16.30 – 16.45  Break / ePosters / Exhibition Visits

16.45 – 17.45  Clinical/Public Health
Poster Focus Clinical/Public Health
Chairs: Andrea Palermo (Italy)
Athanasios Anastasilakis (Greece)

16.45  Muscle density, but not size, correlates well with muscle performance
Ling Wang (China)

16.50  Albumin-adjusted calcium equation and reference interval for adjusted calcium. Data from the UK Biobank
Marian Schini (United Kingdom)

16.55  Design and topline results of TransCon PTH, a long-acting PTH, phase 2 trial in patients with hypoparathyroidism
Lars Rejnmark (Denmark)
<table>
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<th>Time</th>
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</table>
| 17.00 | Effect of denosumab on circulating markers of atherosclerosis in women with postmenopausal osteoporosis  
*Cristiana Cipriani (Italy)* |
| 17.05 | Deep learning spine segmentation to get accurate and relevant BMD and TBS values: The OsteoLaus study  
*El Hassen Ahmed Lebrahim (France)* |
| 17.10 | The recommended starting dose of 0.4mg/kg burosumab is insufficient for most children with X-linked hypophosphatemia (XLH) – Results from the first treated patients in Sweden  
*Sigrun Hallgrimsdottir (Sweden)* |
| 17.15 | Discussion |

**16.45 – 17.45 Basic/Translational Live Stream 2**

**Poster Focus Basic/Translational**

*Chairs: Ilaria Roato (Italy)  
Petar Milovanovic (Serbia)*

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| 16.45 | Effects of a ketogenic diet on the progression of osteoarthritis in obese mice – in vivo characterization and analysis of underlying epigenetic mechanisms  
*Maura Strigini (France)* |
| 16.50 | Functional assessment of coding and regulatory variants from the DKK1 locus  
*Núria Martínez-Gil (Spain)* |
| 16.55 | Vitamin C epigenetically controls osteogenesis and bone mineralization  
*Roman Thaler (United States)* |
| 17.00 | Osteosarcoma cells release factors that enhance RANKL-positive extracellular vesicle discharge by osteoblasts  
*Alfredo Cappariello (Italy)* |
| 17.05 | Gene set enrichment analysis reveals a first somatic mutation in the catalytic domain of MAP2K1 in a melorheostosis patient  
*Raphaël De Ridder (Belgium)* |
| 17.10 | Early onset idiopathic osteoporosis: digenism of wnt signaling pathway  
*Caroline Caetano (France)* |
| 17.15 | Discussion |

**17.45 – 18.00 Break / ePosters / Exhibition Visits**
18.00 – 19.00 **Clinical/Public Health**

**Workshop 3: Reduced Bone Mass in Children and Adults with common Genetic Syndromes: Transition from Childhood to Adulthood**

*Chairs: Barbara Obermayer-Pietsch (Austria)  
Yasemin Alanay (Turkey)*

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<th>Time</th>
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<tr>
<td>18.00</td>
<td>Transition of care in heritable forms of bone fragility</td>
<td><em>Eugenie Koumakis (France)</em></td>
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<tr>
<td>18.20</td>
<td>Bone related-comorbidities in children and adults with genetic conditions</td>
<td><em>Serap Turan (Turkey)</em></td>
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<td>18.40</td>
<td>Discussion</td>
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18.00 – 19.00 **Basic/Translational**

**Workshop 3: Extracellular Vesicles: From the Basics to Clinical Application**

*Joint session with IEVS (International Extracellular Vesicle Society)*

*Chairs: Eleni Douni (Greece)  
Jeroen van de Peppel (The Netherlands)*

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<td>18.00</td>
<td>Extracellular vesicle heterogeneity</td>
<td><em>Dennis K. Jeppesen (United States)</em></td>
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<tr>
<td>18.20</td>
<td>Bone repair with mesenchymal stem cell extracellular vesicles</td>
<td><em>Mario Gimona (Austria)</em></td>
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<td>18.40</td>
<td>Discussion</td>
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19.00 – 20.00 **New Investigators**

**NI Seminar**

Postdocs, PhD students and junior faculty staff are invited to gather together for the New Investigator Seminar and student presentations. Delegates will have the opportunity to interact with other new investigators, as well as to meet with ECTS staff and members of the New Investigator Committee to discuss what the ECTS can do for YOU!

*Chairs: Ciro Menale (Italy)  
Marietta Herrmann (Germany)*

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<tr>
<td>19.00</td>
<td>A perfusion-based system for 3D in vitro culture of stromal cells: Bone tissue model... and beyond</td>
<td><em>Manuele Muraro (Switzerland)</em></td>
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</table>
19.08 Early effects of androgen deprivation on bone and mineral homeostasis: a prospective cohort study
Karel David (Belgium)

19.16 Micro-architectural changes of lumbar vertebrae in patients with alcoholic liver cirrhosis
Jelena Jadzic (Serbia)

19.24 Mice with a heterozygous microdeletion in the aggrecan gene exhibit a growth disorder similar to that of humans with heterozygous aggrecan mutations
Ameya Bendre (Sweden)

19.32 Melatonin alleviates vascular calcification and ageing through exosomal miR-204/miR-211 cluster in a paracrine manner
Feng Xu (China)

19.40 The role of cytoplasmic mRNA polyadenylation in the pathogenesis of Osteogenesis imperfecta
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P001 Transcriptome analysis reveals potential biomarkers of CLCN7-dependent Autosomal Dominant Osteopetrosis Type 2 (ADO2)
Iona Norwood1, Denis Szondi2, Nadia Rucci2, Anna Teti1, Antonio Maurizi1
1Discab, University of L’Aquila, L’Aquila, Italy

P002 Low serum osteocalcin levels are associated with the presence of diabetes mellitus in glucocorticoid treated patients
Helena Florez1, José Hernández-Rodriguez2, Josep Lluís Carrasco2, Sergio Prieto-González3, Xavier Filella4, Ana Monegal1, Núria Guàñabens1, Pilar Peris1
1Metabolic Bone Diseases Unit, Department of Rheumatology, Hospital Clinic, University of Barcelona, Barcelona, Spain, 2Vasculitis Research Unit, Department of Autoimmune Diseases, Hospital Clinic, Barcelona, Spain, 3Biostatistics, Department of Basic Clinical Practice, University of Barcelona, Barcelona, Spain, 4Biochemistry and Molecular Genetics Department, Hospital Clinic, Barcelona, Spain

P003 Highly sensitive quantification of human total VEGF-A with a novel ELISA
Andreea Ana-Maria Suciu1, Elisabeth Gadermaier1, Jacqueline Wallwitz1, Gabriela Berg2, Gottfried Himmler1
1The Antibody Lab, Vienna, Austria, 2Biomedica Medizinprodukte GmbH, Vienna, Austria

P004 Extracellular vesicles are new bone turnover diagnostic tools to discriminate osteoporosis induced by estrogen deprivation or by unloading
Alfredo Cappariello1,2, Argia Ucci1, Maurizio Muraca1, Anna Teti1, Nadia Rucci2
1Children Hospital Bambino Gesù, Rome, Italy, 2Biotechnological and Applied Clinical Sciences, University of L’Aquila, L’Aquila, Italy, 3Department of Women’s and Children’s Health, University of Padova, Padova, Italy

P005 Serum biomarkers for antiresorptives-related osteonecrosis of the jaw: In vivo and clinical validation studies
Hye-Yeon Kim1, Jinwoo Kim2
1Graduate School of Medicine, Ewha Womans University, Seoul, Korea, Republic of, 2Oral and Maxillofacial Surgery, Ewha Womans University, Seoul, Korea, Republic of

P006 The relationship between bone regulatory markers and bone turnover in renal osteodystrophy
Syazrah Salam1,2, Orla Gallagher3, Fatma Gossie1, Arif Khwaja1, Richard Eastell2
1Sheffield Kidney Institute, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, United Kingdom, 2Academic Unit of Bone Metabolism, University of Sheffield, Sheffield, United Kingdom, 3Oncology and Metabolism, University of Sheffield, Sheffield, United Kingdom

P007 Novel assay for uncarboxylated osteocalcin (ucOC) demonstrates an association between plasma glucose and ucOC levels in humans
Milja Arponen1, Eeva-Christine Brockmann2, Riku Kiviranta1, Urpo Lamminmäki1, Kaisa K Ivaska1
1Institute of Biomedicine, University of Turku, Turku, Finland, 2Department of Biotechnology, University of Turku, Turku, Finland

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Thiberiu Banica1, Sara Vandewalle1, Hans-Georg Zmierczak1, Stefan Goemaere1, Jean De Schepper1, Jean-Marc Kaufman1, Bruno Lapauw1
P009  The PoCOSTeo cohort – deep bone phenotyping for fracture risk prediction
Christoph Haudum1,2, Barbara Luegger1, Kerstin Koschka1, Hans Peter Dimai1, Barbara Obermayer-Pietsch1
1Division of Endocrinology and Diabetology, Medical University Graz, Graz, Austria,
2CBmed GmbH – Center for Biomarker Research in Medicine, Graz, Austria

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Gitte Lund Christensen1, Trine W. Jensen2, Michael Sejer Hansen3,4, Kim Hørslev-Petersen5, Lars Hyllestrup6, Bo Abrahamsen7,8,9, Bente Langdahl10, Bo Zerahn11, Jan Pødenphant12, Kristian Stengaard-Petersen12, Peter Junker13, Mikkel Østergaard14,15, Tine Lottenburger6, Torkell Juulsgaard Ellingsen12, Lis Smedegaard Andersen12, Ib Tønder Hansen12, Henrik Skjødt14, Jens K. Pedersen5, Anders Jørgen Svendsen16,17, Ulrik Tarp17, Hanne M. Lindegaard13, Merete Lund Hetland14,18, Niklas Rye Jørgensen19, The CIMESTRA study group
1Dept. of Clinical Biochemistry, Copenhagen University Hospital Righospitalet, Glostrup, Denmark, 2Dept. of Endocrinology, Copenhagen University Hospital, Denmark, Hvidovre, Denmark, 3Dept. of Rheumatology, Copenhagen University Hospital, Gentofte, Denmark, 4ReumaKlinik Roskilde, Roskilde, Denmark, 5Dept. of Rheumatology, Gighospital, University of Southern Denmark, Graasten, Denmark, 6Dept. of Endocrinology, Copenhagen University Hospital, Hvidovre, Denmark, 7OPEN, University of Southern Denmark, Odense, Denmark, 8Department of Medicine, Holbaek Hospital, Holbaek, Denmark, 9NDORMS, University of Oxford, Oxford, United Kingdom, 10Dept. of Endocrinology and Internal Medicine THG, Aarhus University Hospital, Aarhus, Denmark, 11Dept. of Clinical Physiology, Copenhagen University Hospital, Herlev, Denmark, 12Dept. of Rheumatology, Aarhus University Hospital, Aarhus, Denmark, 13Dept. of Rheumatology, Odense University Hospital, Odense, Denmark, 14Copenhagen Center for Arthritis Research, Center for Rheumatology and Spine Disease, Glostrup, Denmark, 15Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark, 16Department of Internal Medicine, Odense University Hospital, Svendborg, Denmark, 17Dept. of Public Health, University of Southern Denmark, Odense, Denmark, 18Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark, 19Dept. of Clinical Biochemistry, Copenhagen University Hospital, Glostrup, Denmark

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Marjorie Durand1, Laure Barbier1, Laurent Mathieu2, Thomas Poyot1, Thomas Demoures2, Jean-Baptiste Souraou1, Alain-Charles Masquelet2, Jean-Marc Collombet1
1Military Biomedical Research Institute (IRBA), Brétigny sur Orge, France, 2Percy Military Hospital, Clamart, France, 3Bégin Military Hospital, Saint Mandé, France, 4Saint-Antoine Hospital, Paris, France

P012  Segmentation of the fascia lata and reproducible quantification of intermuscular adipose tissue and fat fraction of the thigh
Klaus Engelke1,2, Oliver Chaudry2, Andreas Friedberger2, Wolfgang Kemmler3, Armin Nagel1
1Department of Medicine 3, FAU University Erlangen-Nürnberg, Erlangen, Germany, 2Inst. of Medical Physics, FAU Erlangen-Nürnberg, Erlangen, Germany, 3Department of Radiology, FAU University Erlangen-Nürnberg, Erlangen, Germany

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Nicolas Theys1, Hara Episkopou1, Céline Pierard1, Anabelle Decottignies2
1Novadip Biosciences, Mont Saint Guibert, Belgium, 2Université catholique de Louvain, Brussels, Belgium
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¹Biomaterials, University of Oslo, Oslo, Norway, ²Department of Endocrinology, Oslo University Hospital, Oslo, Norway, ³Institute of Clinical Medicine, University of Oslo, Oslo, Norway |
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Elena Makareeva¹, Laura Gorrell¹, Shakib Omari¹, Edward L. Mertz¹, Sergey Leikin¹  
¹NICHD, National Institutes of Health, Bethesda, United States |
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Patryk Zarecki¹, Johannes Grillari²,³,⁴, Miguel Debono¹, Matthias Hack³, Richard Eastell¹  
¹Oncology & Metabolism, University of Sheffield, Sheffield, United Kingdom, ²Department of Biotechnology, University of Natural Resources and Life Sciences, Vienna, Austria, ³Christian Doppler Laboratory on Biotechnology of Skin Aging, Department of Biotechnology, BOKU-University of Natural Resources and Life Sciences Vienna, Vienna, Austria, ⁴Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Austrian Cluster for Tissue Regeneration, Vienna, Austria |
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¹University of São Paulo - School of Dentistry of Ribeirão Preto, Ribeirão Preto, Brazil, ²Federal University of Itajubá, Itajubá, Brazil |
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¹UMR 1238 - Phy-OS, INSERM, Université de Nantes, Nantes, France |
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¹Université de Paris, CNRS, INSERM, B3OA, Paris, France, ²Ecole Nationale Vétérinaire d’Alfort, B3OA, Maisons-Alfort, France |
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Donata Iandolo¹, Mikhael Hadida¹, Guénaëlle Bouët Chalon¹, Röisin M. Owens², Laurence Vico¹, David Marchat¹  
¹SAINBIOSE, INSERM U1059, Saint-Priest-en-Jarez, France, ²Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge, United Kingdom |
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Yu Ning Chim¹, Simon Kwoon Ho Chow¹, Sze Yi Mak², Michelle Meng Chen Li³, Bob Ching Hang Yung², Edmond Wing Fung Yau², Elvis Chun Sing Chui¹  
¹The Chinese University of Hong Kong, Hong Kong, China, ²Koln 3D Technology (Medical) Limited, Hong Kong, China |
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Wenchao Zhong¹, Xingyang Li¹, Wei Cao¹,², Liangjiao Chen¹, Janak L. Pathak¹, Qingbin Zhao¹
¹Key Laboratory of Oral Medicine, Guangzhou Institute of Oral Disease, Affiliated Stomatological Hospital of Guangzhou Medical University, Guangzhou, China, ²Academic Centre of Dentistry Amsterdam (ACTA), Vrije Universiteit Amsterdam and University of Amsterdam, Amsterdam, The Netherlands

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Ekaterina Zinchenko¹, Vladyslav Luzin¹, Dmitry Astrakhantsev¹, Nadezhda Mosyagina¹
¹State Establishment of Lugansk People’s Republic Saint Luka Lugansk State Medical University, Lugansk, Ukraine

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Irina Soloyova¹, Vladyslav Luzin¹, Yuliya Venidiktova¹, Natal’ya Zabolotnaya¹
¹State Establishment of Lugansk People’s Republic Saint Luka Lugansk State Medical University, Lugansk, Ukraine

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Donata Iandolo¹,², Jonathan Sheard³, Galit Katarivas Levy³, Charalampos Pitsalidis³, Francesca Santoro³, Athina E. Markaki³, Darius Widera³, Róisín M. Owens²
¹INSERM U1059, Saint-Priest-en-Jarez, France, ²Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge, United Kingdom, ³School of Pharmacy, University of Reading, Reading, United Kingdom, ⁴Department of Engineering, University of Cambridge, Cambridge, United Kingdom, ⁵CABHC@CRIB, Napoli Istituto Italiano di Tecnologia, Naples, Italy

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Uwe Yacine Schwarze¹,²,³, Franz Josef Strauss²,⁴, Reinhard Gruber²,³,⁵
¹Department of Dental Medicine and Oral Health, Department of Orthopaedics and Trauma, Medical University of Graz, Graz, Austria, ²Department of Oral Biology, Medical University of Vienna, Vienna, Austria, ³Austrian Cluster for Tissue Regeneration, Vienna, Austria, ⁴Department of Conservative Dentistry, School of Dentistry, University of Chile, Santiago, Chile, ⁵Department of Periodontology, School of Dental Medicine, University of Bern, Bern, Switzerland

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Dominik Hanetseder¹, Tina Levstek¹, Heinz Redl¹, Daria Marolt Presen¹
¹Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Austrian Cluster for Tissue Regeneration, Vienna, Austria

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¹Laboratory for Mineralized Tissues, University of Zagreb School of Medicine, Scientific Center of Excellence for Reproductive and Regenerative Medicine, Zagreb, Croatia, ²University of Zagreb School of Veterinary Medicine, Zagreb, Croatia, ³University of Zagreb School of Medicine, Zagreb, Croatia

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Sedat Odabas¹, Berkay Erenay¹, Bora Garipcan¹
¹Chemistry Department Faculty of Science, Ankara University, Ankara, Turkey, ²Institute of Biomedical Engineering, Boğaziçi University, Istanbul, Turkey
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Timo Damm¹, Olga Will¹, Jana Humbert¹, Mirko Gerle², Claus-C. Glüer¹
¹Department of Biomedical Imaging, Clinic of Radiology, University-Hospital Schleswig-Holstein, Kiel, Germany, ²Department of Oral and Maxillofacial Surgery, University-Hospital Schleswig-Holstein, Kiel, Germany

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Juan Antonio Romero-Torrecilla¹, Luis Riera², José Valdés-Fernández², Tania López-Martínez¹, Purificación Ripalda-Cemborain¹, Vineetha Jayawarna³, Peter Childs³, Manuel Salmerón-Sánchez¹, Felipe Prósper-Cardoso¹, Froilán Granero-Moltó¹
¹Terapia Celular, Clínica Universidad de Navarra, Pamplona, Spain, ²Orthopedic Surgery and Traumatology, Clínica Universidad de Navarra, Pamplona, Spain, ³Biomedical Engineering, University of Glasgow, Scotland, United Kingdom

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Felix N Schmidt¹, Kilian E Stockhausen¹, Michael Hahn¹, Tim Rolvien¹,², Christian Schulze³, Klaus Püschel³, Michael Amling¹, Björn Busse¹
¹Department of Osteology and Biomechanics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ²Department of Orthopedics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ³Institute for Synaptic Physiology, Center for Molecular Neurobiology Hamburg, Hamburg, Germany

P038 Osteogenic potential of periodontal cells is dependent on Notch signaling

Polina Klauzen¹, Natella Enukashvili¹, Anna Malashicheva¹
¹Laboratory of Regenerative Biomedicine, Institute of Cytology, Russian Academy of Sciences, Saint-Petersburg, Russian Federation

P039 Sinus floor elevation using a new bovine bone grafting material: Case report

Gretel Pellegrini¹, Andrea S. Mattiuzzi², Miguel A Pellegrini², Luis A Corso², Cintya P. Contreras Morales³, Elizabeth Arandia Osnaga⁴, Susana N Zeni¹,⁴
¹Institute of Immunology, Genetics and Metabolism - Osteopathies Laboratory, CONICET, Buenos Aires, Argentina, ²Department of Clinical Operative and Prosthesis II, University of Buenos Aires, School of Dentistry, Buenos Aires, Argentina, ³INIGEM (UBA/CONICET), Buenos Aires, Argentina, ⁴Department of General and Oral Biochemistry, University of Buenos Aires, School of Dentistry, Buenos Aires, Argentina

P040 A biomechanical study of the role of sitagliptin on the bone characteristics of diabetic rats

Arezoo Abdi¹, Ermioni Pasiou², Stavros Kourkoulis², Despina Perrea¹, John Vlamis¹
¹Medical School, National and Kapodistrian University of Athens, Athens, Greece, ²Unit of Biomechanics, National Technical University of Athens, Athens, Greece

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Guido Schröder¹, Laura -Marie Vivelli², Sven Spiegel², Reimer Andresen², Claus Maximilian Cullen¹, Andreas Wree², Marko Schulze³, Olga Sahmel³, Heiner Martin³, Hans-Christof Schober²
¹Internal Medicine, Municipal Hospital Acedemic Teaching Hospital University of Rostock, Rostock, Germany, ²University of Rostock, Rostock, Germany, ³Institute of Diagnostic and Interventional Radiology/Neuroradiology, Westküstenklinikum Heide, Academic Teaching Hospital of the Universities of Kiel, Luebeck and Hamburg, Heide, Germany, ⁴Institute of Anatomy University of Rostock, Rostock, Germany, ⁵Institute of Anatomy, University of Rostock, Rostock, Germany, ⁶University of Rostock, Institute for Biomedical Engineering, Rostock-Warnemünde, Rostock, Germany, ⁷Municipal Hospital Acedemic Teaching Hospital University of Rostock, Rostock, Germany
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Delphine Farlay¹, Sébastien Rizzo¹, Louis-Georges Ste-Marie², Laetitia Michou³, Suzanne N. Morin⁴, Shiijing Qiu⁴, Roland Chapurlat⁴, Sudhaker D Rao⁵, Jacques Brown⁶
¹INSERM, UMR 1033, Univ Lyon, Université Claude Bernard Lyon 1, Lyon, France, ²Université de Montreal, Montreal, Canada, ³Division of Rheumatology, Department of Medicine, CHU de Québec-Université Laval, Quebec City, Canada, ⁴McGill University, Montreal, Canada, ⁵Bone & Mineral Research Laboratory, Henry Ford Health Syste, Detroit, United States

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Alexandra Tits¹, Peter Varga², Jean-François Kaux², Erwan Plougonven³, Justin Fernandez⁴, Pierre Drion⁴, G Harry Van Lenthe³, Davide Ruffoni⁷
¹Department of Aerospace and Mechanical Engineering, University of Liège, Liège, Belgium, ²AO Research Institute Davos, Davos, Switzerland, ³Department of Physical Medicine and Sports Traumatology, University of Liège, Liège, Belgium, ⁴Chemical Engineering Department, University of Liège, Liège, Belgium, ⁵Auckland Bioengineering Institute, Auckland, New Zealand, ⁶Department of Biomedical and Preclinical Sciences, University of Liège, Liège, Belgium, ⁷Department of Mechanical Engineering, KU Leuven, Leuven, Belgium

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Richard Abel¹, Ulrich Hansen², Justin Peter Cobb¹
¹Medicine, Surgery and Cancer, Imperial College London, London, United Kingdom, ²Mechanical Engineering, Imperial College London, London, United Kingdom

P045  Effect of administration of azithromycin and/or probiotic bacteria on bones of estrogen-deficient rats
Urszula Cegieła¹, Maria Pytlik¹, Aleksandra Janas¹, Piotr Londzin¹, Joanna Folwarczna¹
¹Department of Pharmacology, School of Pharmaceutical Sciences in Sosnowiec, Medical University of Silesia, Katowice, Sosnowiec, Poland

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Stamatia Rokidi¹, Natalie Bravenboer², Sonja Gamsjaeger¹, Pascale Chavassieux¹, Jochen Zwerina¹, Eleftherios Paschalis³, Socrates Papapoulos³, Natasha Appelman-Dijkstra³
¹Ludwig Boltzmann Institute of Osteology at Hanusch Hospital of OEGK and AUVA Trauma Centre Meidling, 1st Med. Dept. Hanusch Hospital, Vienna, Austria, ²Leiden Center for Bone Quality, Leiden University Medical Center, Leiden, The Netherlands, ³INSERM UMR 1033, University of Lyon, Lyon, France

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Jelena Jadzic¹, Danica Cvetkovic¹, Petar Milovanovic¹, Nada Tomanovic¹, Marija Djuric¹, Danijela Djonic¹
¹Laboratory for Anthropology and Skeletal Biology, Institute for Anatomy, Faculty of Medicine, University of Belgrade, Belgrade, Serbia, ²Institute of Forensic Medicine, Faculty of Medicine, University of Belgrade, Belgrade, Serbia, ³Institute of Pathology, Faculty of Medicine, University of Belgrade, Belgrade, Serbia

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¹Department of Biomaterials, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany, ²Department of Chemistry and Physics of Materials, Paris-Lodron-University of Salzburg, Salzburg, Austria, ³Institut für Medizinische Genetik und Humangenetik, Charité-Universitätsmedizin Berlin, corporate member of Freie Universität Berlin,
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Kilian Stockhausen1, Felix Schmidt1, Mahan Qwamizadeh1, Eva Wölfel1, Haniyeh Hemmatian1, Imke Greving2, Daniel Laipple3, Björn Busse1
1Department of Osteology and Biomechanics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, 2Institute of Materials Research, Helmholtz-Zentrum Geesthacht, Outstation at German Electron Synchrotron DESY, Geesthacht, Germany

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Teodora Rodic1, Eva Maria Wölfel2, Petar Milovanovic1,2, Imke A.K. Fiedler2, Danica Cvetkovic3, Katharina Jähn2, Michael Amling2, Jelena Sopta4, Slobodan Nikolic3, Vladimir Zivkovic1, Björn Busse2, Marija Djuric1
1Department of Anatomy, University of Belgrade, Faculty of Medicine, Belgrade, Serbia, 2University Clinic Eppendorf, Institute for Osteology and Biomechanics, Hamburg, Germany, 3Institute for Forensic Medicine, University of Belgrade, Faculty of Medicine, Belgrade, Serbia, 4Institute for Pathology, University of Belgrade, Faculty of Medicine, Belgrade, Serbia

P051  Influence of LDFA and MPTA angles values of patients with varus deformity on the structural properties of bone tissue, obtained by computer microtomography measurements
Anna Nikodem1, Miroslaw Kulej2, Jaroslaw Filipiak1, Szymon Ł. Dragan2, Justyna Wolicka1, Szymon F. Dragan2
1Mechanical Department, Wroclaw University of Science and Technology, Wroclaw, Poland, 2Department and Clinic of Orthopaedic and Traumatologic Surgery, Wroclaw Medical University, Wroclaw, Poland

P052  A new osteoporotic animal model for implant-related infected non-unions after intramedullary fixation of the femur
Ronald Man Yeung Wong1, Jie Li1, Tsz Kiu Li1, Simon Kwoon Ho Chow1, Margaret Ip2, Wing-Hoi Cheung1
1Orthopaedics & Traumatology, The Chinese University of Hong Kong, Sha Tin, Hong Kong, 2Microbiology, The Chinese University of Hong Kong, Sha Tin, Hong Kong

P053  Vibration treatment modulates inflammatory response via the p38 MAPK pathway in osteoporotic rat fracture healing
Yu Ning Chim1, Wing Hoi Cheung1, Simon Kwoon Ho Chow1
1The Chinese University of Hong Kong, Hong Kong, China

P054  Notoginsenoside R1 facilitates stem cell-based bone tissue engineering via inducing osteogenesis, angiogenesis and cell adhesion
Haiyan Wang1, Janak Lal Pathak1, Richard T. Jaspers2, Gang Wu3
1Affiliated Stomatology Hospital of Guangzhou Medical University, Guangzhou,
P055 Exosomes released from osteogenically differentiating SHEDs carry miRNAs that promote osteogenic differentiation of osteoblast precursor cells
Yongyong Yan¹, Janak L Pathak¹, Richard T. Jaspers², Gang Wu³
¹Key Laboratory of Oral Medicine, Guangzhou Institute of Oral Disease, Affiliated Stomatological Hospital of Guangzhou Medical University, Guangzhou, China, ²Faculty of Behavioural and Movement Sciences, Vrije Universiteit Amsterdam, Amsterdam Movement Sciences, Amsterdam, The Netherlands, ³Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and Vrije Universiteit Amsterdam, Amsterdam Movement Sciences, Amsterdam, The Netherlands

P056 The effects of sodium benzoate on structure of the proximal growth plate of the humerus and the thyroid gland
Vitaly Morozov¹, Elena Morozova¹, Vladyslav Luzin¹, Irina Belik²
¹Federal State Autonomous Educational Institution of Higher Education Belgorod State University”, Belgorod, Russian Federation, ²State Establishment of Lugansk People’s Republic Saint Luka Lugansk State Medical University, Lugansk, Ukraine

P057 Growth and formation of the skeletal bones in rats with streptozocin-induced diabetes after tibia fracture
Alexandr Torba¹, Vladyslav Luzin¹, Dmitry Lugovskov¹, Nicolaj Botnar³, Valeriya Shekhovtsova¹
¹State Establishment of Lugansk People’s Republic Saint Luka Lugansk State Medical University, Lugansk, Ukraine

P058 Growth of the skeletal bones under effect of formaldehyde vapors in different age periods
Vladimir Nizhel’sky¹, Vladyslav Luzin¹, Yuliya Sumtsova¹, Yuliya Chistyakova¹, Denis Novokhatsky¹
¹State Establishment of Lugansk People’s Republic Saint Luka Lugansk State Medical University, Lugansk, Ukraine

P059 Myb deficiency impacts Rank-Rankl-Opg system
Veronika Oralova¹, Sabina Stouracova¹,², Mary Clarke³, Jon Frampton³, Petr Benes⁴, Eva Matalova¹,²
¹Institute of Animal Physiology and Genetics CAS, Brno, Czech Republic, ²University of Veterinary and Pharmaceutical Sciences, Brno, Czech Republic, ³Institute of Cancer and Genomic Sciences, University of Birmingham, Birmingham, United Kingdom, ⁴Department of Experimental Biology, Faculty of Sciences, Masaryk University, Brno, Czech Republic

P060 Histomorphometric analysis of the alveolar trabecular bone using dentin as biomaterial
Matko Oguić¹, Sanja Zorić Cvek², Ana Terezić Jerbić Radetić², Tanja Celić², Dragica Bobinac¹, Olga Cvijanović Peloza²
¹Dental Polyclinic Rident, Rijeka, Croatia, ²Department of Anatomy, Medical Faculty of the University of Rijeka, Rijeka, Croatia, ³Juraj Dobrila University of Pula, Pula, Croatia

P061 Characteristics of micro-fracture healing events in trabecular bone (microcalli) from human vertebrae remain unaffected by bisphosphonate treatment
Annika vom Scheid², Eric F. Grisolia Seifert¹, Imke A.K. Fiedler¹, Christine Plumeier¹, Kilian Stockhausen¹, Kathrin Mletzko¹, Pallavi Pandit², Matthias Schwartzkopf², Stephan V. Roth², Michael Amling¹, Björn Busse¹
¹Department of Osteology and Biomechanics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ²Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany
P062  The secretome of mesenchymal stromal cells drives functional heterogeneity
Andrew Stone1, Rachel Crossland2, Emma Rand1, Alasdair Kay1, Gabriel Thornes1, Amanda Barnes1, Savvas Ioannou1, Xiao-Nong Wang1, Ian Hitchcock1, Paul Genever1
1Department of Biology, University of York, York, United Kingdom, 2Haematological Sciences, Newcastle University, Newcastle, United Kingdom

P063  Growth plate cartilage transplanted to the articular surface remodels into articular-like cartilage in a process promoted by the synovial joint microenvironment
Zelong Dou1, Michael Chau1, Marta Baroncelli1, Ameya Bendre1, Ellie Landman1, Lars Ottosson1, Ola Nilsson1,2
1Pediatric Endocrinology Unit & Center for Molecular Medicine, Department of Women’s and Children’s Health, Karolinska Institutet and University Hospital, Stockholm, Sweden, 2School of Medical Sciences, Örebro University, Örebro, Sweden

P064  Advanced 3D-confocal microscopy of cleared mouse bones reveals the architecture and quantitative interrelationship of the stromal and vascular compartments in bone
Nicolas Peredo1, Anna-Marei Bohm1, Elena Nefyodova1, Nikky Corthout2, Sebastian Munck2, Christa Maes1
1Laboratory of Skeletal Cell Biology and Physiology (SCEBP), Skeletal Biology and Engineering Research Center (SBE), Department of Development and Regeneration, KU Leuven, Leuven, Belgium, 2VIB Bio Imaging Core and VIB-KU Leuven Center for Brain & Disease Research, Department of Neurosciences, KU Leuven/VIB, Leuven, Belgium

P065  Role of hydrolyzed collagen in bone regeneration of adult zebrafish
Nili Vasserman1, Chen Shochat Carvalho1, David Karasik1
1Medical Sciences, Bar-Ilan University, Safed, Israel

P066  Endothelial cell physiology in a microfluidic device and their response to mesenchymal stromal cells in vitro
Shuang Zhang1, Bastiaan Tuk2, Marijke Koedam1, Johannes W. van Neck2, Volkert van Steijn1, Johannes P.T.M. van Leeuwen1, Bram C.J. van der Eerden1
1Internal Medicine, Erasmus Medical Center, Rotterdam, The Netherlands, 2Plastic and Reconstructive Surgery, Erasmus Medical Center, Rotterdam, The Netherlands

P067  Dynamics of immunomodulatory roles of skeletal progenitors during hematoma phase of bone healing
Drenka Trivanovic1, Theresa Kreuzahler1, Ana Rita Pereira1, Maximilian Rudert2, Marietta Herrmann1
1University Hospital Wuerzburg, Wuerzburg, Germany, 2Department of Orthopaedic Surgery, König-Ludwig-Haus, University of Wuerzburg, Wuerzburg, Germany

P068  Bmp2 overexpression effects over appendicular skeleton development
José Valdés-Fernández1, Juan Antonio Romero-Torrecilla1, Tania López-Martínez1, Purificación Ripalda-Cembrón1, Belén Prados2, José Luis de la Pompa2, Felipe Prósper1, Froilán Granero-Moltó1
1Terapia Celular, Clínica Universidad de Navarra, Pamplona, Spain, 2Señalización Intercelular durante el Desarrollo y la Enfermedad Cardiovascular, CNIC (Centro Nacional de Investigaciones Cardiovasculares), Madrid, Spain

P069  Habitual loading measured in individual mice one week post surgery predicts fracture callus stiffness progression in a femur defect model
Graeme R. Paul1, Esther Wehrle1, Jianhua Zhang1, Gisela A. Kuhn1, Ralph Müller1
1Institute for Biomechanics, ETH Zurich, Zurich, Switzerland

P070  Role of macrophages in bone marrow cavity formation
Benjamin Tosun1, Christine Fabritius1, Christine Hartmann1
1Department for Bone and Skeletal Research, Institute of Musculoskeletal Medicine, University Hospital Münster, Germany, Münster, Germany
P071 Role of beta-catenin on chondrocyte- and perichondrial-derived osteoblast differentiation  
Lena Wolff¹, Christine Fabritius¹, Christine Hartmann¹  
¹Bone- und Skeletal Research, Westfalian Wilhelms University, Institute of Musculoskeletal Medicine, Muenster, Germany

P073 The effect of ADAR2 in osteosarcoma  
Michela Rossi¹, Viviana De Martino¹, Giulia Battafarano¹, Eda Mariani¹, Valeriana Cesarini², Salvatore Minisola², Angela Gallo¹, Andrea Del Fattore¹  
¹Bambino Gesù Children’s Hospital, Rome, Italy, ²Policlinico Umberto I, Sapienza, Rome, Italy

P074 Senolytic cocktail dasatinib+quercetin (D+Q) ameliorate irradiation-induced bone loss in mice through inhibiting osteocyte senescence and SASP  
Qinghe Geng¹, Shen Wang¹, Han Huan¹, Huabei Sun¹, Juan Zhai¹, Kajin Guo¹, Huaiyuan Zhai¹, Ke Heng¹, Hongwei Li¹, Jun Liu¹, Yiru Geng¹, Guoqiang Huang¹, Feiyuan Zhang¹, Jian Li¹, Yingle Li¹  
¹Xuzhou Medical University, Xuzhou, China, ²Guangxi Medical University, Nanning, China, ³Nanjing University of Chinese Medicine, Nanjing, China, ⁴Nanjing Medical University, Nanjing, China

P075 Osteosarcoma cells release factors that enhance RANKL-positive extracellular vesicle discharge by osteoblasts  
Alfredo Cappariello¹,², Marta Colletti¹, Angela Di Giannatale¹, Maurizio Muraca³, Nadia Rucci³, Anna Teti²  
¹Children Hospital Bambino Gesù, Rome, Italy, ²Biotechnological and Applied Clinical Sciences, University of L’Aquila, L’Aquila, Italy, ³Department of Women’s and Children’s Health, University of Padova, Padova, Italy

P076 Effects of soybean isoflavone genistein and daidzein on proliferation and viability of human osteogenic sarcoma cell Saos-2  
Hana Wakou¹, Kyoko Nakata¹, Hiromi Hagiwara¹  
¹Biomedical Engineering, Toin University of Yokohama, Yokohama, Japan

P077 Preventative metformin treatment increases myeloma tumour burden and bone disease in vivo  
Beatriz Gamez¹, Emma V. Morris¹, Sam WZ Olechnowicz¹, Aneka Sowman¹, Christina J. Turner¹, Claire M. Edwards¹,²  
¹Nuffield Department of Surgical Sciences, University of Oxford, Oxford, United Kingdom, ²Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom

P078 Pyridazinone scaffold-based molecules decrease osteosarcoma cells growth  
Aurélie Moniot¹, Julien Braux¹, Christine Guillaume¹, Ingrid Allart-Simon¹, Sandra Audonnet¹, Sarah Renault¹, Françoise Réolini¹, Janos Sapi², Sophie C. Gangloff¹, Stéphane Gérard³, Frédéric Velard¹  
¹EA 4691 BIOS « Biomatériaux & inflammation en site osseux », Université de Reims Champagne Ardenne, Reims, France, ²UMR CNRS 7312 ICMR « Institut de Chimie Moléculaire de Reims », Université de Reims Champagne Ardenne, Reims, France, ³URCACYT, Université de Reims Champagne Ardenne, Reims, France, ⁴INSERM UMR1238 Phy.Os « Sarcomes osseux et remodelage des tissus calcifiés », Université de Nantes, Nantes, France

P079 Exposure of primary bone tumor-associated stromal cells to multi-pesticides at low doses and paracrine effects on osteoclast differentiation  
Valérie Trichet¹, Louis-Romée Le Nail¹, Régis Brion¹, Françoise Réolini¹, François Vallette², Olivier Hérauld³, Christophe Olivier²  
¹INSER UMR1238, Nantes University, Nantes, France, ²INSERM UMR 1232, Nantes University, Nantes, France, ³CNRS UMR 7292, Tours University, Tours, France
P080  Eldecalcitol (ED-71) alleviates oral squamous cell carcinoma progression by suppressing GPX1 expression through NF-κB pathway
Yuan Gao¹, Yupu Lu¹, Minqi Li¹
¹Department of Bone Metabolism, School and Hospital of Stomatology, Shandong University & Shandong Key Laboratory of Oral Tissue Regeneration & Shandong Engineering Laboratory for Dental Materials and Oral Tissue Regeneration, Jinan, China

P081  Vitamin D affects extracellular vesicle communication in bone metastasis
Joëlle Klazen¹, Iris Robbesom¹, Resti Rudjito¹, Thomas Hartjes¹, Martin van Royen¹, Sten Libregts², André van Wijnen¹, Carola Zilkens¹, Hans van Leeuwen¹, Marjolein van Driel¹
¹Erasmus Medical Center, Rotterdam, The Netherlands, ²Utrecht University, Utrecht, The Netherlands, ³Mayo Clinic, Rochester, United States

P082  RANKL promotes the expansion of mammary epithelial cells in osteoporotic TgRANKL mouse models
Anthi Kolokotroni¹², Vagelis Rinotas¹, Evi Gkikopoulou¹², Eirini Efthathiou¹², Eleni Dermitzaki¹², Thanasis Rentis¹², Danae Zareifi², Ilias Lymeropoulos³, Martina Samiotaki¹, Leonidas Alexopoulos¹, George Panayotou¹, Eleni Douni¹²
¹Institute of Bioinnovation, Biomedical Sciences Research Center Alexander Fleming, Vari-Athens, Greece, ²Department of Biotechnology, Agricultural University of Athens, Athens, Greece, ³Department of Mechanical Engineering, National Technical University of Athens, Athens, Greece

P083  Establishment of progesterone-induced mammary carcinogenesis in a humanized TgRANKL osteoporotic mouse model
Anthi Kolokotroni¹², Vagelis Rinotas¹, Evi Gkikopoulou¹², Lydia Ntari³, Maritina Rouchota³, Eirini Fragogeorgi³, Danae Zareifi³, Christos Fotis³, Ilias Lymeropoulos³, Leonidas Alexopoulos³, George Loudos³, Maria Denis³, Niki Karagianni³, Eleni Douni¹²
¹Institute of Bioinnovation, Biomedical Sciences Research Center Alexander Fleming, Vari-Athens, Greece, ²Department of Biotechnology, Agricultural University of Athens, Athens, Greece, ³Bioemission Technology Solutions (BIOEMTECH), Athens, Greece

P084  Mechanical unloading enhances bone destruction and tumor expansion in multiple myeloma: critical roles of osteocytic RANKL induction
Kotaro Tanimoto¹², Masahiro Hiasa¹², Hirofumi Tenshin¹², Jumpei Teramachi¹², Asuka Oda², Takeshi Harada², Mohammad Ashter³, Kimiko Sogabe², Masahiro Oura³, Itsuro Endo³, Toshio Matsumoto², Eiji Tanaka¹, Masahiro Abe²
¹Department of Orthodontics and Dentofacial Orthopedic, Tokushima University, Tokushima, Japan, ²Department of Hematology, Endocrinology and Metabolism, Tokushima University, Tokushima, Japan, Tokushim, Japan, ³Department of Hematology, Endocrinology and Metabolism, Institute of Biomedical Sciences, Tokushima University, Tokushima, Japan

P085  Risk of osteoporotic fracture in patients with breast cancer; meta-analysis
Young-Kyun Lee¹, Deog-Yoon Kim², Yong-Chan Ha³, Dong Won Byun⁴, Ha-Young Kim⁵, Ho-Yeon Chung⁶, Youjin Lee⁶, SNUBH-KSBMR
¹Orthopedic Surgery, Seoul National University Bundang Hospital, Seongnam, Korea, Republic of, ²Kyung Hee University Medical Center, Seoul, Korea, Republic of, ³Orthopedic Surgery, Chung-Ang University College of Medicine, Seoul, Korea, Republic of, ⁴Soonchunhyang University Hospital, Seoul, Korea, Republic of, ⁵Gangneung Asan Hospital, Gangneung, Korea, Republic of, ⁶National Cancer Center, Goyang, Korea, Republic of
P086  The change of bone mineral density and bone metabolism after gastrectomy for gastric cancer: a meta-analysis
Young-Kyun Lee1, Deog-Yoon Kim2, Yong-Chan Ha3, Youjin Lee4, Dong Won Byun4, Ho-Yeon Chung5, Ha-Young Kim6, SNUBH-KSBMR
1Seoul National University Bundang Hospital, Seongnam, Korea, Republic of, 2Kyung Hee University Medical Center, Seoul, Korea, Republic of, 3Orthopedic Surgery, Chung-Ang University College of Medicine, Seoul, Korea, Republic of, 4National Cancer Center, Goyang, Korea, Republic of, 5Soonchunhyang University Hospital, Seoul, Korea, Republic of, 6Gangneung Asan Hospital, Gangneung, Korea, Republic of

P088  Adipocytes and osteoporosis inhibit osteoblast differentiation by downregulating histone acetylation
Rodrigo P F Abuna1, Luciana O Almeida1, Alann T P Souza1, Roger R Fernandes1, Thales F V Sverzut1, Bruna Scaf1, Julia Lima1, Adalberto L Rosa1, Marcio M Beloti1
1School of Dentistry of Ribeirão Preto, University of Sao Paulo, Ribeirão Preto, Brazil

P089  Positive effects of mesenchymal stem cells from healthy rats on the impaired osteoblast differentiation of mesenchymal stem cells from osteoporotic and diabetic rats
Alann T P Souza1, Gileade P Freitas1, Helena B Lopes1, Denise Weffort1, Fabiola S Oliveira1, Marcio M Beloti1, Adalberto L Rosa1
1School of Dentistry of Ribeirão Preto, University of Sao Paulo, Ribeirão Preto, Brazil

P090  Revealing the localization of Annexin A6 in matrix vesicles during physiological mineralization
Ekeveliny Amabile Veschi1, Mayte Bolean1, Agnieszka Strzelecka-Kiliszek2, Joanna Bandorowicz-Pikula2, Slawomir Pikula2, Yubo Wang3, Thierry Granjon3, Saida Mebarek3, David Magne4, Ana Paula Ramos1, José Luis Millán5, Rene Buchet6, Massimo Bottini7, Pietro Ciancaglini7
1Chemistry, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto (FFCLRP) da Universidade de São Paulo (USP), Ribeirao Preto, Brazil, 2Nencki Institute of Experimental Biology, Warsaw, Poland, 3Institut de Chimie et Biochimie Moléculaires et Supramoléculaires ICBSM UMR 5246 - Université Lyon 1 - CNRS - INSA Lyon - CPE Lyon Batiment Raulin, Lyon, France, 4Sanford Burnham Prebys Medical Discovery Institute, La Jolla, San Diego, United States, 5Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy

P091  The type 1 lysophosphatidic acid receptor is involved in osteoblastogenesis up to osteocytogenesis
Adebayo Candido Alioli1, Léa Demesmay2, Sara Laurencin2, Nicolas Beton1, Delphine Farlay2, Helene Follet2, Jerold Chun3, Richard Rivera4, Daniel Bouvard4, Irma Machuca-Gayet4, Jean-Pierre Salles5, Isabelle Gennero1, Olivier Peyruchaud2
1Centre de Physiopathologie de Toulouse Purpan INSERM UMR 1043, Toulouse, France, 2INSERM, Unit 1033, Université Claude Bernard Lyon 1, Lyon, France, 3Department of Molecular Biology, Dorris Neuroscience Center, The Scripps Research Institute, San Diego, United States, 4Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy

P092  Vitamin C epigenetically controls osteogenesis and bone mineralization
Roman Thaler1, Farzaneh Khani2, Janet M Denbeigh2, Ines Sturmlechner1,4, Xianhu Zhou2, Oksana Pichurin2, Amel Dudakovic2, Jiang Zhong3, Seong-Heon Lee4, Ramesh Natarajan6, Ivo Kalajzic2, David R Deyle5, Eleftherios P Paschalidis3, Barbara Misof6, Tamas Ordog10, Andre J van Wijnen1
1Department of Orthopedic Surgery, Department of Biochemistry & Molecular Biology, Center for Regenerative Medicine, Mayo Clinic, Rochester, United States, 2Department of Orthopedic Surgery, Mayo Clinic, Rochester, United States, 3Departments of Pediatric and Adolescent Medicine, Mayo Clinic, Rochester, United States, 4Department of Pediatrics, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands, 5Epigenomics Program, Center for Individualized Medicine, Mayo Clinic,
Rochester, United States, 6Department of Internal Medicine, Virginia Commonwealth University, Richmond, United States, 7Department of Reconstructive Sciences, UConn Health, Farmington, United States, 8Department of Medical Genetics, Mayo Clinic, Rochester, United States, 91st Medical Department, Ludwig Boltzmann Institute of Osteology at the Hanusch Hospital of Social Health Insurance Vienna (WGKK) and Austrian Social Insurance for Occupational Risk (AUVA), Vienna, Austria, 10Epigenomics Program, Center for Individualized Medicine, Department of Physiology and Biomedical Engineering and Division of Gastroenterology and Hepatology, Department of Medicine, Mayo Clinic, Rochester, United States

P093  Effects of ginsenoside Rb2 on osteogenic differentiation of C2C12 cells
Tahoo Park1, Heesu Lee2,3, Seong-Hee Ko3,4
1Natural Product Research Center, Korea Institute of Science and Technology, Gangneung, Korea, Republic of, 2Oral anatomy, Gangneung-Wonju National University, College of Dentistry, Gangneung, Korea, Republic of, 3Research Institute of Oral Science, Gangneung, Korea, Republic of, 4Pharmacology, Gangneung-Wonju National University, College of Dentistry, Gangneung, Korea, Republic of

P094  MiR-155 negatively regulates osteogenic differentiation of mMSCs, bone regeneration and bone mass
Zhichao Zheng1, Janak Lal Pathak1, Richard T. Jaspers2, Gang Wu3
1Affiliated Stomatology Hospital of Guangzhou Medical University, Guangzhou, China, 2Faculty of Behavioural and Movement Sciences, Vrije Universiteit Amsterdam, Amsterdam Movement Sciences, Amsterdam, The Netherlands, 3Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and Vrije Universiteit Amsterdam, Amsterdam Movement Sciences, Amsterdam, The Netherlands

P095  Molecular players in biogenesis of mineralization-competent matrix vesicles
Sandeep Chaudhary1, Massimo Bottini2, Sana Khalid3, José Luis Millán4, Dobrawa Napierala3
1University of Alabama at Birmingham, Birmingham, United States, 2University of Rome Tor Vergata, Rome, Italy, 3University of Pittsburgh, Pittsburgh, United States, 4Sanford Children’s Health Research Center, Sanford Burnham Prebys Medical Discovery Institute, La Jolla, United States

P096  The integrin α2β1-dependent collagen upregulation is linked to the TGF-β superfamily
Melanie Brand1, Daniel Kronenberg1, Jens Everding2, Beate Eckes3, Richard Stange1
1Department of Regenerative Musculoskeletal Medicine, Institute of Musculoskeletal Medicine, University Hospital Münster, Münster, Germany, 2Department of Trauma, Hand and Reconstructive Surgery, University Hospital Münster, Münster, Germany, 3Department of Dermatology, University of Cologne, Cologne, Germany

P098  Serotonin promotes osteogenic differentiation of MC3T3-E1 cells
YuRi Song1, Si Yeong Kim1, Hyun Ah Lee1, Jeong-Hwa Baek1, Hyun Jeong Kim1, Hee Sam Na1, Jin Chung1
1Department of Oral Microbiology, Pusan National University School of Dentistry, Yangsan-si, Korea, Republic of, 2Department of Molecular Genetics, School of Dentistry, Seoul National University, Seoul, Korea, Republic of, 3Department of Dental Anesthesiology, School of Dentistry, Seoul National University, Seoul, Korea, Republic of

P099  Glutamine metabolism in osteoprogenitors governs bone mass accrual and PTH-induced bone anabolism
Steve Stegen1, Sophie Torrekens1, Riet Van Looveren1, Peter Carmeliet2, Geert Carmeliet1
1Clinical & Experimental Endocrinology, KU Leuven, Leuven, Belgium, 2Angiogenesis & Vascular Metabolism, KU Leuven/VIB, Leuven, Belgium

P100  Deletion of miR-675 in hMSC-TERTs leads to increased ALP activity
Ines Foessl1, Marijke Koedam2, Moustapha Kassem3, Bram van der Eerden2, Barbara Obermayer-Pietsch1, Jeroen van de Peppel2
P101 Extensive modeling-based bone formation after 2 months of romosozumab treatment: Results from the FRAME clinical trial
Erik F. Eriksen1,2, Roland Chapurlat3, Rogely Boyce4, Jacques P. Brown5, Stéphane Horlait6, Cesar Libanati7, Yifei Shi8, Rachel B. Wageman9, Pascale Chavassieux10
1Department of Clinical Endocrinology, Oslo University Hospital, Oslo, Norway, 2Institute of Clinical Medicine, Oslo University, Oslo, Norway, 3INSERM UMR 1033, University of Lyon, Lyon, France, 4Amgen Inc., Thousand Oaks, United States, 5CHU de Quebec Research Centre and Laval University, Quebec City, Canada, 6Amgen, Boulogne Billancourt, France, 7UCB Pharma, Brussels, Belgium

P102 Syndecan 3 stimulates bone formation through stabilisation of Frizzled 1
Andrew Butcher1, Gemma Charlesworth1, Amanda Prior1, Katherine Sperinck1, Adolorata Pisconti2, George Bou-Gharios1, Anna Daroszewska1, Rob Van ‘T Hof1
1Liverpool University, Liverpool, United Kingdom, 2Stony Brook University, New York, United States

P103 FasL deficiency impacts the developing mandibular bone in an age-dependent manner
Eva Svandova1,2, Barbara Vesela1,2, Alice Ramesova1,2, Herve Lesot1, Anne Poliard3, Jeremy Sadoine1, Amina Djoudi1, Eva Matalova1,2
1Institute of Animal Physiology and Genetics, Academy of Sciences of the Czech Republic, Brno, Czech Republic, 2University of Veterinary and Pharmaceutical Sciences, Brno, Czech Republic, 3Laboratory of Orofacial Pathologies, Université Paris Descartes, Paris, France

P105 Homeodomain transcription factor MEIS1 inhibits differentiation of immortalised human MSCs
Yuan Guo1, Rosinda Mies1, Moustapha Kassem1, Hans van Leeuwen1, Jeroen van de Peppel1
1Erasmus University Medical Center, Rotterdam, The Netherlands, 2University of Southern Denmark and Odense University Hospital, Odense, Denmark

P106 Unravelling the role of phosphatidylserine on the precipitation of calcium phosphate by mineralizing-extracellular vesicles
Marcos Antonio Cruz1, Claudio Ferreira1, Saida Mebarek2, Rene Buchet2, Luciano Caseli3, Pietro Ciancaglini1, Ana Paula Ramos1
1Department of Chemistry, University of Sao Paulo, Ribeirao Preto, Brazil, 2UFR Chimie Biochimie, Universite Lyon 1, Lyon, France, 3Instituto de Ciências Ambientais Químicas e Farmacêuticas, Federal University of Sao Paulo, Sao Paulo, Brazil

P107 Fra1 is dispensable for the function of Runx2-expressing osteoblasts
Julia Luther1, Mona Neven1, Olga Winter1, Lana Rosenthal1, Michael Amling1, Jean-Pierre David1
1Institute for Osteology and Biomechanics (IOBM), University Medical Center Hamburg-Eppendorf, Hamburg, Germany

P108 Epigenetic priming of BMP-mediated osteogenesis and bone repair
Amel Dudakovic1, Rebekah Samsonraj1, Christopher Paradise1, Catalina Galeano-Garces2, Merel Mol2, Daniela Galeano-Garces2, Pengfei Zan3, M. Lizeth Galvan4, Mario Hevesi5, Oksana Pichurin1, Roman Thaler1, Dana Begun1, Peter Kloen1, Marcel Karperien1, A. Noelle Larson1, Jennifer Westendorf1, Simon Cool6, Andre van Wijnen7
1Mayo Clinic, Rochester, United States, 2Amsterdam University Medical Center, Amsterdam, The Netherlands, 3University of Twente, Enschede, The Netherlands, 4Institute of Medical Biology, Singapore, Singapore
P109 Deciphering the role of non-coding RNAs in osteogenesis and osteoclastogenesis
Sara Moura1,2, Mario Barbosa1,2, Susana Santos1,2, Maria Ines Almeida1,2
1i3S/INEB, Porto, Portugal, 2ICBAS, Universidade do Porto, Porto, Portugal

P110 BMP-7 improves cells sheets-like from human dental pulp stem cells: Expression of osteogenic markers, gap junction, and ECM remodeling
Leticia Gasparoni1, Cristiane Bronzeri1, Katlicia Paiva1
1Anatomy, University of Sao Paulo, Sao Paulo, Brazil

P111 Glucocorticoids induce osteoporosis mediated by glucocorticoid receptor-dependent and -independent pathways
Yu Jiang1
1The Affiliated Wuxi No.2 People’s Hospital of Nanjing Medical University, Wuxi, China

P113 ZBTB20 positively regulated titanium particle-induced macrophage inflammatory response and osteolysis
Yue Ding1, Junxiong Qiu1
1Department of Orthopaedic Surgery, Sun Yat-Sen Memorial Hospital, Sun Yat-Sen University, Guangzhou, China

P114 Idebenone induces bone loss via increasing osteoclastogenesis
OJ Sul1, HS Choi1
1University of Ulisan, Ulisan, Korea, Republic of

P115 Role of Tubulin β6 on microtubule dynamics and podosome belt organization
Justine Maurin1, Guillaume Bompard1, David Guérït1, Anne Blangy1
1CRBM, CNRS, Montpellier, France

P116 TSPAN7 as a novel anti-resorptive target for the treatment of osteoporosis
Doori Park1, Jingjing Lin1, Soo Young Lee1
1Life Science and the Research Center for Cellular Homeostasis, Ewha Womans University, Seoul, Korea, Republic of

P117 Density and function of actin-microdomains in healthy and NF1 deficient osteoclasts revealed by combined use of AFM and STED-microscopy
Takahiro Deguchi1, Elnaz Fazeli2, Sami Koho3, Paula Pennanen4, Maria Alanne4, Mayank Modi5, John Eriksson5, Kari Viennola5, Pekka Hänninen5, Juha Peltonen5, Tuomas Näräoja7
1Nanoscopy and Nikon Centre@IIT, Nanobiophotonics, Italian Institute of Technology, Genova, Italy, 2University of Turku, Turku, Finland, 3Molecular Microscopy and Spectroscopy, Italian Institute of Technology, Genova, Italy, 4Institute of Biomedicine, University of Turku, Turku, Finland, 5Cell Biology, Faculty of Science and Engineering, Åbo Akademi University, Turku, Finland, 6Department of Ophthalmology and Vision Science, UC Davis Eye Center, Sacramento, United States, 7Department of Laboratory Medicine, Karolinska Institutet, Huddinge, Sweden

P118 Altered osteoclastogenesis in Fanconi Anemia: a role for the hematopoietic niche in the bone marrow failure of the syndrome?
Alessia Oppezzo1, Filippo Rosselli1
1Université Paris-Saclay, Institut Gustave Roussy, CNRS, Villejuif, France

P119 MiR-188-5p negatively regulates titanium particle-induced macrophage inflammation and osteolysis by targeting BTK
Yue Ding1, Sipeng Lin1
1Department of Orthopaedic Surgery, Sun Yat-Sen Memorial Hospital, Sun Yat-Sen University, Guangzhou, China

P120 The effect of denosumab treatment on osteoclast precursor cells in postmenopausal osteoporosis
Andreas Fontalis1, Fatma Gossiel1, Marian Schini1, Jennifer Walsh1, Richard Eastell1
1Department of Orthopaedics, University of Dundee, Dundee, United Kingdom
P121 Zoledronic acid is not equally potent on osteoclasts generated from different individuals – osteoclasts from smokers are less sensitive

Anais M. J. Møller1,2, Jean-Marie Delaissé3,4, Jacob B. Olesen3, Troels Bechmann3,5, Jonna S. Madsen1,2, Luisa M. Canto6, Silvia R. Rogatto2,6, Kent Søe3,4,7

1Department of Clinical Immunology and Biochemistry, Lillegaard Hospital, University Hospital of Southern Denmark, Vejle, Denmark, 2Department of Regional Health Research, University of Southern Denmark, Odense, Denmark, 3Clinical Cell Biology, Dept. of Pathology, Odense University Hospital, Odense, Denmark, 4Department of Clinical Research, University of Southern Denmark, Odense, Denmark, 5Department of Oncology, Lillegaard Hospital, University Hospital of Southern Denmark, Vejle, Denmark, 6Department of Clinical Genetics, Lillegaard Hospital, University Hospital of Southern Denmark, Vejle, Denmark, 7OPEN, Odense Patient data Explorative Network, Odense University Hospital, Odense, Denmark

P122 Evidence that teriparatide regulates osteoclast differentiation and survival in mice via Cxcr4 activity

Beatriz Larraz-Prieto1, Javier Bonsón1, Oude D Zhu-Huang1, Sachin Wani1, Omar Albagh1,2, Colin Farquharson1, Stuart Ralston1, Nerea Alonso1

1Rheumatology and Bone Disease Unit, CGEM-IGMM, University of Edinburgh, Edinburgh, United Kingdom, 2College of Health and Life Sciences, Hamad Bin Khalifa University, Doha, Qatar, 3Division of Functional Genetics and Development, Roslin Institute, University of Edinburgh, Edinburgh, United Kingdom

P123 Mir-342-3p regulates osteoclastogenesis in arthritis-associated osteoclast precursors

Claire Lozano1, Valentin Estibals1, Gabriel Courties1, Hortense Couriot1, Claudine Blin-Wakkach2, Maria-Bernadette Made1, Christophe Hue1, Hendrick Mambu Mambueni1, Henri-Jean Garchon1, Virginie Escrivou1, Florence Apparailly1, Isabelle Duroux-Richard1

1IRMB, INSERM UMR 1183, Montpellier, France, 2CNRS UMR 7370, Université Cote d’Azur, Laboratoire de PhysioMédecine Moléculaire, Nice, France, 3Université Paris-Saclay, UVSQ, INSERM, Infection et inflammation, Montigny-Le-Bretonneux, France, 4UTCBS, CNRS, INSERM, Université Paris Descartes, Sorbonne-Paris-Cité, Chimie ParisTech, PSL Research University, Paris, France

P124 The non-erythropoietic analogue cibinetide inhibits osteoclastogenesis in vitro and increases bone density in mice

Zamzam Awida1, Albert Kolomansky1, Sahar Hiram-Bab2, Nathalie Ben-Califa1, Hussam Saad1, Tamar Liron1, Maria Ibrahim1, Michael Brines3, Yankel Gabet2, Drorit Neumann1

1Department of Cell and Developmental Biology, Sackler Faculty of Medicine, Tel-Aviv University, Tel Aviv, Israel, 2Department of Anatomy and Anthropology, Sackler Faculty of Medicine, Tel-Aviv University, Tel Aviv, Israel, 3Araim Pharmaceuticals, Tarrytown, United States

P125 Noggin as a regulator of bone remodelling

Fateme Safari1,2, Mark Siegrist1, Silvia Dolder1, Eliza Hartmann1, Frank Klenke1, Willy Hofstetter1

1Bone Biology & Orthopaedic Research, Department for BioMedical Research (DBMR), University of Bern, Bern, Switzerland, 2Graduate School for Cellular and Biomedical Sciences, University of Bern, Bern, Switzerland, 3Clinics of Orthopaedic Surgery & Traumatology, Inselspital, University Hospital Bern, Bern, Switzerland

P126 Bone remodeling mechanisms in osteoporotic TgRANKL transgenic mouse models

Vagelis Rinotas1, Panagiotis Nikolau1,2, Konstantinos Kritikos1,2, Apostolos Papadopoulos1,2, Lenka Plestilova1, Astrid Jüngel1, Martina Samiotaki1, George Panayotou1, Eleni Douni1,2
Institute of Bioinnovation, Biomedical Sciences Research Center, Alexander Fleming, Vari-Athens, Greece, 2Department of Biotechnology, Agricultural University of Athens, Athens, Greece, 3Center of Experimental Rheumatology, University Hospital Zürich, Zurich, Switzerland

P128 Osteocyte lacunae characteristics in iliac crest bone samples of aged adults
Stéphane Blouin1, Barbara M. Misof1, Markus A. Hartmann1, Andrea Berzlanovich2, Gerlinde M. Gruber3, Sonja Lueger1, Phaedra Messmer1, Petra Keplinger1, Paul Roschger1
1Ludwig Boltzmann Institute of Osteology at Hanusch Hospital of OEGK and AUVA Trauma Centre Meidling, 1st Med. Dept. Hanusch Hospital, Vienna, Austria, 2Center for Forensic Science, Medical University of Vienna, Vienna, Austria, 3Department of Anatomy, Center for Anatomy and Cell Biology, Medical University of Vienna, Vienna, Austria

P130 Matrix vesicle biomimetics carrying Annexin A5 and Alkaline Phosphatase bind to native collagen produced by human smooth muscle cell transdifferentiated in osteo/chondrocyte cells
Mayté Bolean1, Benedetta Izzii, Soetkin van Kerckhoven2, Massimo Bottini3, Ana Paula Ramos1, José Millán1, Marc Hoylaerts5, Pietro Ciancaglini1
1Chemistry, University of Sao Paulo, Ribeirão Preto, Brazil, 2Department of Epidemiology and Prevention, IRCCS NEUROMED, Pozzilli IS, Italy, 3Department of Osteology, Center for Anatomy and Cell Biology, Medical University of Vienna, Vienna, Austria, 4Department of Cardiovascular Sciences, University of Leuven, Leuven, Belgium

P131 Linc-ROR promotes MSCs chondrogenesis differentiation and releases osteoarthritis through activation of SOX9 via sponging miR-138 and miR-145
Lu Feng1, Zhengmeng Yang1, Yuccong Li1, Yuccong Li1
1Department of Orthopaedics and Traumatology, Chinese University of Hong Kong, Shatin, Hong Kong

P132 Secondary ossification center protects growth plate chondrocytes from mechanical stress
Meng Xie1, Lei Li1, Phillip Newton1, Lauren Shumate2, Shigeki Nishimori2, Henry Kronenberg2, Murat Bastepe2, Igor Adameyko1,2, Andrei Chagin1,4
1Karolinska Institutet, Solna, Sweden, 2Harvard Medical School, Boston, United States, 3Medical University of Vienna, Vienna, Austria, 4Sechenov University, Moscow, Russian Federation

P133 Inhibition of HMGA2 abolishes articular cartilage regeneration induced by Lin28a in mice
Yohan Jouan1, Benoit Bardeche-Trystram1, Yohan Lionne1, Augustin Latourte1,2, Pascal Richette1,2, Hang-Korng Ea1,2, Martine Cohen-Solal1,2, Eric Hay1
1BIOSCAR U1132, Université de Paris,INSERM 1132, Paris, France, 2Rheumatology, Hopital Lariboisière, AP-HP, Paris, France

P134 Synovial cells secrete a temperature-stable protein that inhibits hypertrophic differentiation and induces articular cartilage differentiation of chondrocytes in vitro
Marta Baroncelli1, Zelong Dou1, Ellie Landman1, Michael Chau1,2, Lars Ottosson1, Ola Nilsson1,2
1Department of Women’s and Children’s Health, Karolinska Institutet, Stockholm, Sweden, 2Department of Orthopedic Surgery, University of Minnesota, Minneapolis, United States, 3School of Medical Sciences, Örebro University and Örebro University Hospital, Örebro, Sweden
P135 Hypertrophy of chondrocytes compromises their mechanical properties
Ekaterina V Medvedeva¹, Meng Xie², Anastasia Akovantseva¹, Peter S Timashev¹,²,³,⁴, Svetlana Kotova¹,²,³,⁴, Andrei S Chagin¹,²
¹Institute for Regenerative Medicine, Sechenov University, Moscow, Russian Federation, ²Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm, Sweden, ³Institute of Photonic Technologies, Research center ‘Crystallography and Photonics’, Troitsk, Russian Federation, ⁴Semenov Institute of Chemical Physics, Moscow, Russian Federation

P136 Probiotics prevent cartilage damage and progression of osteoarthritis in mice
Antonia Sophocleous¹,², Asim Azfer², Carmen Huesa³, Eleni Stylianou¹, Giovanny Rodriguez Blanco¹, Stuart H Ralston¹
¹Department of Life Sciences, European University Cyprus, Nicosia, Cyprus, ²Rheumatology and Bone Diseases Unit, MRC Institute of Genetics and Molecular Medicine, University of Edinburgh, Edinburgh, United Kingdom, ³Centre for Reproductive Health, The Queen’s Medical Research Institute, University of Edinburgh, Edinburgh, United Kingdom

P137 Activation of caspases and autophagy during cartilage development
Barbora Vesela¹, Petra Bilikova², Eva Svandova¹, Alice Ramesova¹, Herve Lesot², Eva Matalova¹
¹Faculty of Veterinary Medicine, University of Veterinary and Pharmaceutical Sciences, Brno, Czech Republic, ²Faculty of Animal Physiology and Genetics, Academy of Sciences of the Czech Republic, Brno, Czech Republic

P140 Postnatal ablation of IGF2 in chondrocytes doesn’t affect normal growth of growth plate and liver
Baoyi Zhou¹, Meng Xie¹, Miguel Constância², Andrei S Chagin¹
¹Department of Physiology and Pharmacology, Karolinska Institutet, Solna, Sweden, ²University of Cambridge, Cambridge, United Kingdom

P141 Oxytocin did not favorably affect the skeletal system of rats with osteoporosis induced by estrogen deficiency and/or type 1 diabetes
Aleksandra Janas¹, Ewa Krucek¹, Piotr Londzin¹, Urszula Cegiela¹, Joanna Folwarczna¹
¹Department of Pharmacology, School of Pharmaceutical Sciences in Sosnowiec, Medical University of Silesia, Katowice, Sosnowiec, Poland

P142 Understanding local effects of orexin A and B on bone in vitro
Young Eun Park¹, Jian-Ming Lin¹, Karen E Callon¹, Dorit Naot¹, Brya G Matthews², David S Musson¹, Jillian Cornish¹
¹Medicine, University of Auckland, Auckland, New Zealand, ²Molecular Medicine and Pathology, University of Auckland, Auckland, New Zealand

P143 Regulation of the local fibroblast growth factor-23 expression in the intestinal epithelial cells
Mayuree Rodrat¹,², Kannikar Wongdee²,³, Narattaphol Charoenphandhu¹,²,³,⁴
¹Department of Physiology, Faculty of Science, Mahidol University, Bangkok, Thailand, ²Center of Calcium and Bone Research (COCAB), Faculty of Science, Mahidol University, Bangkok, Thailand, ³Faculty of Allied Health Sciences, Burapha University, Chonburi, Thailand, ⁴Institute of Molecular Biosciences, Mahidol University, Nakhonpathom, Thailand

P144 Diabetes Mellitus: a synonym to functional hypoparathyroidism
Poonji Gupta¹
¹ENT, TMMC&RC, Ghaziabad, India
P145  Albumin-adjusted calcium equation and reference interval for adjusted calcium. Data from the UK Biobank  
Marian Schini1, Fadil Hannan2, Jennifer Walsh1, Richard Eastell1  
1The University of Sheffield, Sheffield, United Kingdom, 2The University of Oxford, Oxford, United Kingdom

P146  Consumption of healthcare resources in a bariatric surgery cohort  
Maria Del Pilar Ahijo Guzman1, Raul Maria Veiga Cabello2, Miguel Cantalejo Moreira1, Justo Ruiz Ruiz3, Antonio Zapatero Gaviria3  
1Rheumatology, Htal Universitario de Fuenlabrada, Fuenlabrada, Spain, 2Rheumatology, Hospital Central de la Defensa Gómez Ulla, Madrid, Spain, 3Internal Medicine, Htal Universitario de Fuenlabrada, Fuenlabrada, Spain

P147  Bone health in women with menstrual and reproductive abnormalities  
Piroska Feher1, Dorina Annar1, Irina Kalabiska2, Annamaria Zsakai1  
1Department of Biological Anthropology, Eotvos Lorand University, Budapest, Hungary, 2Research Center for Sport Physiology, University of Physical Education, Budapest, Hungary

P148  FGF23 and urinary phosphate excretion for estimation of nephron number: differences between chronic kidney failure and kidney transplantation  
Marzia Pasquali1, Natalia De Martini2, Lida Tartaglione2, Silverio Rotondi2, Sandro Mazzaferro2  
1Nephrology, Policlinico Umberto I, Sapienza University, Rome, Italy, 2Sapienza University of Rome, Rome, Italy, 3ICOT, Latina, Italy

P149  Evaluation of antidiabetic potential of flavonoid rich fraction of Hybanthus enneaspermum in diabetic rats: In-silico molecular docking studies for aldose reductase, α-glucosidase and α-amylase  
Dinesh Kumar Patel1  
1Department of Pharmaceutical Science, Sam Higginbottom University of Agriculture, Technology and Sciences, Payagraj, India

P150  Sirtuin 1 deficiency decreases bone mass and increases bone marrow adiposity in a mouse model of chronic energy deficiency  
Loïc Louvet1, Damien Letterme1, Séverine Delplace1, Flore Miellot1, Pierre Marchandise3, Véronique Gauthier1, Pierre Hardouin1, Christophe Chauveau1, Olfa Ghali Mhenni3  
1Laboratory of Marrow Adiposity and Bone, University of Littoral Côte d’Opale, Boulogne sur mer, France

P151  Transient-receptor-potential-vanilloid-1/Oxytocin receptor mRNA is up-regulated in Soleus muscle and brain while Oxytocin increases in bone after cold stress in mice: The Oxytonic effect of Oxytocin  
Claudia Camerino1,2, Elena Conte3, Adele Romano2, Marialuisa De Ceglia2, Silvana Gaetani2, Domenico Tricarico3  
1Department of Biomedical Sciences and Human Oncology, University of Bari, Bari, Italy, 2Department of Physiology and Pharmacology ‘V. Ersipamer’, University of Rome, Sapienza, Rome, Italy, 3Department of Pharmacy-Drug Science, University of Bari, Bari, Italy

P152  Feeding powdered nacre prevents ovariectomy-induced bone loss in the rat  
Kim Dung Nguyen1, Norbert Laroche1, Arnaud Vanden Bossche1, Yacine Bertache1, Marie-Thérèse Linossier1, Mireille Thomas1, Sylvie Peyroche1, Myriam Normand1, Laurence Vico1, Marthe Rousseau1,2  
1Campus Santé Innovation, U1059 INSERM - SAINBIOSE, Saint-Priest-en-Jarez, France, 2CNRS/Lyon University/INSa-Lyon, UMR5510 MATEIS, Lyon, France
P153  
**Body composition and anthropometric data – influence of total and uc-dpMGP**

*Natascha Schweighofer*¹,², *Moritz Strasser*³, *Christoph W Haudum*¹,², *Albrecht Schmidt*⁴, *Ines Mursic*⁴, *Burkert Pieske*⁴, *Thomas R Pieber*¹,², *Barbara Obermayer-Pietsch*¹  
¹Dept. of Internal Medicine, Division of Endocrinology and Diabetology, Medical University of Graz, Graz, Austria, ²CBmed, Center for Biomarker Research in Medicine, Graz, Austria, ³Department of Health Studies, Institute of Biomedical Science, FH JOANNEUM, University of Applied Sciences, Graz, Austria, ⁴Dept. of Internal Medicine, Division of Cardiology, Medical University of Graz, Graz, Austria

P154  
**Total versus uc-dpMGP: Associations with cardiovascular parameters**

*Natascha Schweighofer*¹,², *Moritz Strasser*³, *Christoph W Haudum*¹,², *Albrecht Schmidt*⁴, *Ewald Kolesnik*⁴, *Burkert Pieske*⁴, *Thomas R Pieber*¹,², *Barbara Obermayer-Pietsch*²  
¹CBmed, Center for Biomarker Research in Medicine, Graz, Austria, ²Department of Internal Medicine, Division of Endocrinology and Diabetology, Medical University of Graz, Graz, Austria, ³Department of Internal Medicine, Division of Endocrinology and Diabetology, Medical University of Graz, Graz, Austria, ⁴Dept. of Internal Medicine, Division of Cardiology, Medical University of Graz, Graz, Austria

P155  
**High fat diet (HFD)-induced obesity augments the deleterious effects of estrogen deficiency in bone. Evidence from post-menopausal mice**

*Dalia Ali*¹, *Florence Figeac*², *Michaela Tencero*², *Nicholas Ditzel*¹, *Alexander Rauch*¹, *Clarissa Schmal*¹, *Moustapha Kassem*¹ ³  
¹Department of Endocrinology and Metabolism, Molecular Endocrinology & Stem Cell Research Unit (KMEB), University of Southern Denmark and Odense University Hospital, Odense, Denmark, ²Molecular Physiology of Bone, Czech Academy of Sciences/Institute of Physiology, Prague, Czech Republic, ³Department of Cellular and Molecular Medicine, University of Copenhagen/Danish Stem Cell Centre, Copenhagen, Denmark

P156  
**Impaired bone healing in type 2 diabetes is caused by defective bone microenvironment functions of skeletal progenitor cells**

*Florence Figeac*², *Michaela Tencero*², *Dalia Ali*¹, *Thomas L. Andersen*³,⁴,⁵, *Dan Rémi Christiansen Appadoo*¹, *Nicholas Ditzel*¹, *Justyna Magdalena Kowal*¹, *Moustapha Kassem*¹,⁶  
¹Molecular Endocrinology, KMEB University of Southern Denmark and Odense University Hospital, Odense, Denmark, ²Molecular Physiology of Bone, Institute of Physiology, Czech Academy of Sciences, Prague, Czech Republic, ³Pathology, Clinical Cell Biology-Odense University Hospital, Odense, Denmark, ⁴Clinical Research, University of Southern Denmark, Odense, Denmark, ⁵Molecular Medicine, University of Southern Denmark, Odense, Denmark, ⁶Cellular and Molecular Medicine, Danish Stem Cell Center (DanStem)-University of Copenhagen/Danish Stem Cell Centre, Copenhagen, Denmark

P157  
**Low protein diet compromises the recovery of lactation-induced bone loss in female mouse dams with no effects on skeletal muscles**

*Ioannis Kanakis*¹, *Moussira Alameddine*¹, *Mattia Scalabrin*¹, *Rob van ‘t Hof*¹, *Susan OZanne*², *Katarzyna Goljanek-Whysall*¹,³, *Aphrodite Vasilaki*¹  
¹Institute of Lifecourse and Medical Sciences, University of Liverpool, Liverpool, United Kingdom, ²MRC Metabolic Diseases Unit and Metabolic Research Laboratories, University of Cambridge, Cambridge, United Kingdom, ³Department of Physiology, School of Medicine, NUI Galway, Galway, Ireland

P158  
**PiT2/SLC20A2: a new regulator of the bone marrow adipose tissue homeostasis?**

*Giulia Frangi*²,³, *Greet Kerckhofs*², *Jérémy Boulestreau*¹,², *Florent Autrusseau*¹,², *Joëlle Veziers*¹,²,³, *Boris Halgand*²,³, *Jérôme Guicheux*¹,²,³, *Xavier Prieur*³, *Laurent Beck*¹,², *Sarah Beck-Cormier*¹,²  
¹INSERM, UMR 1229, Regenerative Medicine and Skeleton (RMeS), Université de Nantes, Ecole Nationale Vétérinaire, Agroalimentaire et de l’Alimentation, Nantes-Atlantique (ONIRIS), Nantes, France, ²Université de Nantes, Unité de Formation et de Recherche
P159  In type 2 diabetes mellitus collagen fibril plasticity is altered along with higher glyco-oxydative damage and non-osteoporotic bone mineral density
Eva Maria Wölfel¹, Katharina Jähn¹, Anna Kornelia Siebels¹, Liang-Yu Ma¹, Grażyna E. Sroga², Annika Vom Scheidt¹, Felix Nikolai Schmidt¹, Birgit Wulff³, Herbert Mushumba³, Klaus Püschel³, Michael Amling¹, Deepak Vashishth⁴, Eric Schaible⁴, Petar Milovanovic¹,³, Elizabeth Zimmermann¹,⁶, Björn Busse¹
¹Department of Osteology and Biomechanics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ²CBIS, Department of Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, United States, ³Department of Forensic Medicine, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ⁴Advances Light Source, Lawrence Berkeley National Laboratory, Berkeley, United States, ⁵Laboratory for Anthropology and Skeletal Biology, University of Belgrade, Belgrade, Serbia, ⁶Shriners Hospitals for Children Canada, Montreal, Canada

P160  Contribution of PD-L1 expression to the energy metabolism of mesenchymal stromal cells
Antoine Boutin¹, ElHadji Djite¹, Abigail Mazzu¹, Didier Pisani¹, Abdel Wakkach¹, Nathalie Mazure², Claudine Blin-Wakkach¹, Matthieu Rouleau¹
¹Université Côte d’Azur, CNRS UMR 7370, Laboratoire de PhysioMédecine Moléculaire, Nice, France, ²Université Côte d’Azur, INSERM U1065, C3M, Nice, France

P161  Characterization and impact on osteogenesis of the extracellular matrix of Bone Marrow Adipocytes in hyperglycemic condition in vitro
Laura Entz¹, Guillaume Falgayrac¹, Christophe Chauveau¹, Gilles Pasquier¹,³, Stéphanie Lucas¹
¹MABLab, ULCO University, Boulogne-sur-Mer Cedex, France, ²MABLab, Lille University, Lille, France, ³Orthopaedic surgery, Lille University Hospital, Lille, France

P162  Ex-situ analysis of bone mineral density and cellular activity in type 1 diabetes mellitus
Liang-Yu Ma¹, Eva Maria Wölffel¹, Kilian Elias Stockhausen¹, Herbert Mushumba³, Birgit Wulff³, Klaus Püschel³, Michael Amling¹, Björn Busse¹, Katharina Jähn¹
¹Department of Osteology and Biomechanics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ²Department of Forensic Medicine, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

P163  Bone Marrow Adipocytes express specific Matrix MetalloProteinases in osteoporotic conditions
Tareck Rharass¹, Laura Entz¹, Adrien Tonione²,³, Hamanou Benachour¹, Damien Letterme¹, Christophe Chauveau², Gilles Pasquier²,⁴, Stéphanie Lucas¹
¹MABLab, Marrow Adiposity and Bone Laboratory, ULCO University, Boulogne sur Mer Cedex, France, ²MABLab, Marrow Adiposity and Bone Laboratory, Lille University, Lille, France, ³Rheumatology, Lille University Hospital, Lille, France, ⁴Orthopaedic Surgery, Lille University Hospital, Lille, France

P164  Time of phenotype onset critical for modelling skeletal effects of T2DM
Tara C Brennan-Speranza¹, Dean Ross¹, Itamar Levinger²
¹Physiology, University of Sydney, Sydney, Australia, ²Victoria University, Melbourne, Australia
P165  Estrogen deficiency alters skeletal and metabolic responses to obesity and weight loss strategies
Maude Gerbaix¹, Maria Papageorgiou¹, Monique Etienne², Daniel Courteix², Julien Hermet³, Christophe Montanier³, Serge Ferrari¹, Lore Metz²
¹Division of Bone Diseases, Geneva University Hospitals and Faculty of Medicine, Geneva, Switzerland, ²Laboratory of Metabolic Adaptation to Exercise In Physiological and Pathological states (AME2P), Clermont Ferrand, France, Clermont Ferrand, France, ³INRA UMR1019, UNH, Clermont Ferrand, France

P167  Comparative body mass index effect on total and undercarboxilated osteocalcina between normogluclemic premenopausal women and men
Marina Soledad Bonanno¹, Graciela Brito¹, Dana Watson¹, Liliana Zago³, Carlos Alfredo Gonzalez Infantino⁴, Susana Noemí Zeni⁵
¹Metabolic Bone Disease Laboratory, INIGEM (UBA/CONICET), Buenos Aires, Argentina, ²Nutrition Department, University of La Matanza (UNLaM), La Matanza, Argentina, ³Nutrition Department, Biochemistry and Pharmacology School, University of Buenos Aires, Buenos Aires, Argentina, ⁴Nutrition Department, Medical School, University of Buenos Aires, Buenos Aires, Argentina

P168  The effectiveness of vitamin D supplementation in functional outcome and quality of life of lumbar spinal stenosis requiring surgery
Sangbong Ko¹
¹Orthopaedic Surgery, Daegu Catholic University Medical Center, Daegu, Korea, Republic of

P169  Vitamin D deficiency and postoperative complications in patients with hip dysplasia undergoing periacetabular osteotomy and the effect of native or active vitamin D supplementation
Taro Mawatari¹, Misa Osako¹, Kazuki Kitade¹, Satoshi Hagio¹, Takahiro Iguchi¹, Hiroaki Mitsuyasu¹, Gen Matsui¹
¹Orthopaedic Surgery, Hamanomachi Hospital, Fukuoka, Japan

P170  Vitamin D status in 1,533 medical examinees at a regional public general hospital
Satoshi Hagio¹, Taro Mawatari¹, Gen Matsui¹, Takahiro Iguchi¹, Hiroaki Mitsuyasu¹, Yasuhiro Mizuki²
¹Orthopaedic Surgery, Hamanomachi Hospital, Fukuoka, Japan, ²Orthopaedic Surgery, Sasebo Kyosai Hospital, Nagasaki, Japan

P171  Serum folate and vitamin B12 levels and the incidence risk of atherosclerotic events over 12 years: the Korean Genome and Epidemiology Study (KoGES)
Ha-Na Kim¹, Young-Mi Eun¹, Sang-Wook Song¹
¹Department of Family Medicine, St Vincent's Hospital, College of Medicine, The Catholic University of Korea, Suwon-si, Korea, Republic of

P172  Hyperglycaemia is not associated with higher volumetric bone mineral density in a Chinese health check-up cohort
Ling Wang¹, Kaiping Zhao¹, Xiaoguang Cheng¹, Annegreet G. Veldhuis-Vlug², China Biobank study group
¹Department of Radiology, Beijing Jishuitan Hospital, Beijing, China, ²Department of Medical Record Management and Statistics, Beijing Jishuitan Hospital, Beijing, China

P173  Comparative effectiveness of three methods for body composition assessment in the verification of manifestations of sarcopenia in obese patients
Valeria Vasileva¹, Larisa Marchenkova¹
¹National Medical Research Center of Rehabilitation and Balneology, Moscow, Russian Federation
P176 Association between bone mineral density and genetic polymorphisms of Wnt signaling pathway among older adults in Taiwan
Su-Lung Su
1School of Public Health, National Defense Medical Center, Taipei, Taiwan

P177 Glucocorticoid receptor promotes osteoblast and adipocyte differentiation by recruiting and being recruited to lineage selective enhancers
Martin R. Madsen1, Moustapha Kassem2, Susanne Mandrup1, Alexander Rauch2
1Functional Genomics & Metabolism Research Unit, University of Southern Denmark, Odense, Denmark, 2Molecular Endocrinology & Stem Cell Research Unit, University of Southern Denmark, Odense, Denmark

P178 RUNX2 T-1025C variant is associated with bone-related biochemical parameters and fracture risk in Maltese postmenopausal women
Melissa Marie Formosa1, Ritienne Formosa1, Angela Xuereb-Anastasi1
1University of Malta, Msida, Malta

P179 Phosphate, BMI and body composition in the Rotterdam Study: Mendelian randomization analysis suggests a causal effect of BMI on serum phosphate level
Ariadne Bosman1, Natalia Campos-Obando1, Trudy Voortman1, Arfan M. Ikram1, Bram C. J. van der Eerden1, André G. Uitterlinden1, M. Carola Zillikens1
1Internal Medicine, Erasmus University Medical Center, Rotterdam, The Netherlands, 2Epidemiology, Erasmus University Medical Center, Rotterdam, The Netherlands

P180 Short stature and microcephaly in two siblings due to a novel de novo IGF1R variant
Alexandra Gkourogianni1,2, Ingrid Alvarez1, Sigrun Hallgrimsdottir1,2, Anna Ek1, Ola Nilsson1,2,3
1Division of Pediatric Endocrinology, Department of Women’s and Children’s Health, Karolinska Institute and University Hospital, Stockholm, Sweden, 2Center for Molecular Medicine, Karolinska Institute and University Hospital, Stockholm, Sweden, 3School of Medical Sciences, Örebro University and University Hospital, Örebro, Sweden

P181 Bone transcriptome sequencing reveals local tissue determinants of bone mineral density
Vid Prijatelj1,2, Sjur Reppe3,4, Matthew Dietz5, Carolina M. Medina-Gomez2,6, Joost A. Verlouw6, André J. van Wijnen5, Kaare M. Gautvik3,4, Eppe B. Wolvius1, Fernando Rivadeneira2,6
1Department of Oral and Maxillofacial Surgery, Erasmus MC, Rotterdam, The Netherlands, 2Department of Internal Medicine, Erasmus MC, Rotterdam, The Netherlands, 3Institute of Basic Medical Sciences, University of Oslo, Oslo, Norway, 4Department of Orthopedic Surgery, Mayo Clinic, Rochester, United States, 5Department of Clinical Biochemistry, Ullevaal University Hospital, Oslo, Norway, 6Department of Epidemiology, Erasmus MC, Rotterdam, The Netherlands

P182 Functional assessment of coding and regulatory variants from the DKK1 locus
Núria Martínez-Gil1, Neus Roca-Ayats1, Nurgül Atalay1, Marta Pineda-Moncusi2, Natàlia Garcia-Giralt1, Wim Van Hul3, Eveline Boudin1, Sergi Vives1, Mireia Vinardell1, Leonardo Mellibovsky1, Xavier Nogués1, Diana Ovejero1, Adolfo Diez-Pérez2, Daniel Grinberg1, Susanna Balcells1
1Department of Genetics, Microbiology and Statistics, Faculty of Biology, Universitat de Barcelona, CIBERER, IBUB, IRSDJ, Barcelona, Spain, 2Musculoskeletal Research Group, IMIM (Hospital del Mar Medical Research Institute), Centro de Investigación Biomédica en Red en Fragilidad y Envejecimiento Saludable (CIBERFES), ISCIII, Barcelona, Spain, 3Center of Medical Genetics, University of Antwerp & University Hospital Antwerp, Antwerp, Belgium
**P183** Dysregulated miRNA expression profile in the presence of SQSTM1 mutation  
*Simone Bianciardi¹, Daniela Merlotti¹, Maria Materozzi², Christian Mingiano¹, Simone Cenci², Luigi Gennari¹*  
¹Department of Medicine, Surgery and Neurosciences, University of Siena, Siena, Italy, ²Division of Genetics and Cell Biology, San Raffaele Scientific Institute, Milano, Italy

**P184** Differential expression analysis of osteoarthritic femoral head bone fragments uncovers underlying transcriptomic determinants  
*Vid Prijatelj¹,², Sjur Reppe³,⁴, Matthew Dietz⁵, Carolina M. Medina-Gomez⁶,⁷, Joost A. Verlouw⁸, Cindy G. Boer⁸, Joyce B.J. van Meurs⁹, Andre J. van Wijnen⁹, Kaare M. Gautvik⁴,⁵, Eppo B. Wolvius¹, Fernando Rivadeneira⁶,⁷*  
¹Department of Oral and Maxillofacial Surgery, Erasmus MC, Rotterdam, The Netherlands, ²Department of Internal Medicine, Erasmus MC, Rotterdam, The Netherlands, ³Institute of Basic Medical Sciences, University of Oslo, Oslo, Norway, ⁴Department of Clinical Biochemistry, Ulleval University Hospital, Oslo, Norway, ⁵Department of Orthopedic Surgery, Mayo Clinic, Rochester, United States, ⁶Department of Epidemiology, Erasmus MC, Rotterdam, The Netherlands

**P185** Calcium sensing receptor silencing in primary hyperparathyroidism associated with promoter hypermethylation and gain of methylation on histone 3  
*Priyanka Singh¹, Sanjay Bhadada¹, Ashutosh Arya¹, Naresh Sachdeva¹, Divya Dahiya², Jyotdeep Kaur³, Uma Saikia⁴*  
¹Endocrinology, Postgraduate Institute of Medical Education and Research, Chandigarh, India, ²General Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh, India, ³Biochemistry, Postgraduate Institute of Medical Education and Research, Chandigarh, India, ⁴Histopathology, Postgraduate Institute of Medical Education and Research, Chandigarh, India

**P186** The epigenetic reader Brd4 is required for skeletal development  
*Christopher Paradise¹, M. Lizeth Galvan¹, Sofia Jerez¹, Eva Kubrova¹, Roman Thaler¹, Andre van Wijnen¹, Amel Dudakovic¹*  
¹Mayo Clinic, Rochester, United States

**P187** Early onset idiopathic osteoporosis: digenism of wnt signaling pathway  
*Carollne Caetano¹, Manon Ricquebourg¹,², Philippe Orcel¹,², Stéphanie Fabre¹,², Thomas Funck Brentano¹,², Martine Cohen Solal¹,², Corinne Collet¹,²*  
¹Inserm U1132 and université de Paris, Paris, France, ²Rheumatology, Hôpital Lariboisière, AP-HP, Paris, France, ³UF de Biologie Moléculaire, Hôpital Lariboisière, AP-HP, Paris, France

**P188** Body and bone structural, reproductive and cellular ageing of Roma women in Hungary  
*Dorina Annar¹, Anna Madaras³, Piroska Feher¹, Irina Kalabiska³, Annamaria Zsakai¹*  
¹Department of Biological Anthropology, Eotvos Lorand University, Budapest, Hungary, ²Peadiatric Pulmonology, Saint Janos Hospital, Budapest, Hungary, ³Research Center for Sport Physiology, University of Physical Education, Budapest, Hungary

**P189** Enhanced BMP-2/BMP-4 ratio in patients with peripheral spondyloarthritis and in cytokine- and stretch-stimulated mouse chondrocytes  
*Anne Briolay¹, Alaeddine El Jamal¹, Paul Arnolfo²,³, Benoît Le Goff²,³, Frédéric Blanchard³, David Magne¹, Carole Bougault¹*  
¹CNRS UMR 5246 ICBMS, University of Lyon, Villeurbanne, France, ²INSERM UMR1238, Nantes University, Nantes, France, ³Rheumatology Department, CHU Nantes, Nantes, France

**P190** Effects of a ketogenic diet on the progression of osteoarthritis in obese mice – in vivo characterization and analysis of underlying epigenetic mechanisms  
*Thomas Solé¹,², Sara Delon¹, Margaux Digonnet¹, Luciano Pirola³, Emiline Groult⁴, Jérôme Lafont⁴, Thierry Thomas¹,², Laurence Vico¹, Maura Strigini³*  
¹CNRS UMR 5246 ICBMS, University of Lyon, Villeurbanne, France, ²INSERM UMR1238, Nantes University, Nantes, France, ³Rheumatology Department, CHU Nantes, Nantes, France
Enriched osteogenic potential of CD317-negative mesenchymal stromal cell populations in vitro and in vivo
Alasdair G Kay1, James Fox1, Andrew Stone1, Sally James1, Elizabeth Kapasa2, Xuebin Wang1, Paul G Genever1
1Department of Biology, University of York, York, United Kingdom, 2Division of Oral Biology, University of Leeds, Leeds, United Kingdom

Proteomic approach in aorta of rheumatoid arthritis-induced 5-LO KO mouse model
Cintia Kazuko Tokuhara1, Flavia Amadeu Oliveira1, Talita Ventura1, Jose Burgos Ponce3, João Paulo Domezi1, Adriano Pessoa1, Gabriela Neubern Oliveira1, Mariana Sanches1, Vimal Veeriah1, Mariana Santesso1, Marilia Afonso Rabelo Buzalaf2, Rodrigo Cardoso Oliveira1
1University of Sao Paulo - Bauru School of Dentistry, Bauru, Brazil, 2Sanford Burnham Prebys Medical Discovery Institute, La Jolla, United States, 3University Center of Adamantina, Adamantina, Brazil

Bone turnover markers in the early stage of rapidly destructive coxopath
Tadashi Yasuda1, Kazuhiro Matsunaga1, Takumi Hashimura1, Yoshihiro Tsukamoto1, Tatsuya Sueyoshi1, Satoshi Ota1, Satoshi Fujita1, Eijiro Onishi1
1Department of Orthopaedic Surgery, Kobe City Medical Center General Hospital, Kobe, Japan

Major stress linked to pathogenesis of rheumatoid arthritis- a case report
Sekib Sokolovic1, Sara Dagher2, Adnan Dautbegovic2, Eman Jamal2
1Clinic for Heart, Blood Vessel and Rheumatic Diseases, University Clinical Center Sarajevo, Sarajevo, Bosnia and Herzegovina, 2Medical Faculty, Sarajevo, Bosnia and Herzegovina

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Chi Duc Nguyen1, Vincent Morel1, Adeline Pierache1, Georges Lion1, René-Marc Flipo1, Bernard Cortet1, Valérie Canva-Delcambre1, Julien Paccou1
1Lille University Hospital, Lille, France

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Carmen Gómez Vaquero1, José Manuel Olmos2, José Luis Hernández2, Dacia Cerdà3, Cristina Hidalgo Calleja4, Juan Antonio Martínez López5, Luis Arboleya6, Francisco Javier Aguilar del Rey7, Silvia Martínez Pardo8, Inmaculada Ros Vilamajó8, Xavier Suris9, Dolores Grados10, Chusús Beltrán Audera11, Evelyn Suero-Rosario11, Inmaculada Gómez Gracia12, Asunción Salmerón Chamizo13, Irene Martín-Esteve13, Helena Flórez14, Antonio Naranjo14, Santos Castañeda15, Soledad Ojeda Bruno15, Sara García Carazo15, Alberto García Vadillo15, Laura López Vives16, Ángeles Martínez-Ferrer17, Helen Borrell Paños18, Pilar Aguado Acín19, Raúl Castellanos-Moreira19, Cristian Tebé20, Nuria Guanabens20, OsteoResSer Working Group of the Spanish Society of Rheumatology1
1Hospital Universitari de Bellvitge, Hospitalet de Llobregat, Spain, 2Hospital Marqués de Valdecilla, Santander, Spain, 3Hospital Moisès Broggi, Sant Joan Despí, Spain, 4Hospital Universitario de Salamanca, Salamanca, Spain, 5Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain, 6Hospital Universitario Central de Asturias, Oviedo, Spain, 7Hospital Universitario Virgen de la Victoria, Málaga, Spain, 8Hospital Universitario Mutua Terrassa, Terrassa, Spain, 9Hospital Son Llàtzer, Palma de Mallorca, Spain, 10Hospital General de Granollers, Granollers, Spain, 11Hospital d’Igualada, Igualada, Spain, 12Hospital
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Zoran Velickovic 1  
1IVa, Institute of Rheumatology, University of Belgrade, Belgrade, Serbia

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Melanija Rašić 1  
1IVa, Institute of Rheumatology, University of Belgrade, Belgrade, Serbia

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1EA 4708-I3MTO, Université d’Orléans, Orléans, France, 2PRIMMO-CHR d’Orléans, Orléans, France

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Enriqueta Vallejo-Yagüe 1, Stefan Weiler 1,2, Andrea Michelle Burden 1  
1Department of Chemistry and Applied Biosciences, ETH Zurich, Zurich, Switzerland, 2Tox Info Suisse, National Poisons Centre, Associated Institute of the University of Zurich, Zurich, Switzerland

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Bodhisattwa Banerjee 1, Ines Fößli 2, Barbara Obermayer-Pietsch 2, David Karasik 1  
1The Azrieli Faculty of Medicine, Bar-Ilan University, Safed, Israel, 2Division of Endocrinology and Diabetology, Medical University Graz, Graz, Austria

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1Department of Biology, Faculty of Science, Chulalongkorn University, Bangkok, Thailand, 2Center of Calcium and Bone Research, Faculty of Science, Mahidol University, Bangkok, Thailand, 3Department of Physiology, Faculty of Science, Mahidol University, Bangkok, Thailand, 4Faculty of Allied Health Sciences, Burapha University, Chonburi, Thailand, 5Institute of Molecular Biosciences, Mahidol University, Nakhon Pathom, Thailand

P204  The application of Lugol’s staining for microcomputerized tomography to visualize and quantify muscles in zebrafish model  
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1The Azrieli Faculty of Medicine, Bar-Ilan University, Safed, Israel

P205  A novel laser-induced lesion paradigm to image osteoblast – immune cell interactions in vivo  
Karina Geurtzen 1, Franziska Knopf 2  
1CRTD - Center for Regenerative Therapies Dresden, CMCB, TU Dresden, Dresden, Germany, 2Center for Healthy Aging and CRTD - Center for Regenerative Therapies TU Dresden, CMCB, TU Dresden, Dresden, Germany
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Laura Peurière¹, Carmelo Mastrandrea¹, Marie-Hélène Lafage-Proust¹, Laurence Vico¹
¹INSERM U1059-SAINBIOSE, Université de Lyon, Saint-Priest-en-Jarez, France

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Imke A. K. Fiedler¹, Felix N. Schmidt¹, Eva M. Wölfel¹, Anton Davydok², Katharina Jähn¹, Dario R. Valenzano¹, Björn Busse¹
¹Department of Osteology and Biomechanics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ²Institute of Material Research, Helmholtz-Zentrum Geesthacht, Outstation at German Electron Synchrotron DESY, Hamburg, Germany, ³Max Planck Institute for Biology of Ageing, Cologne, Germany

P208 Mice with a heterozygous microdeletion in the aggrecan gene exhibit a growth disorder similar to that of humans with heterozygous aggrecan mutations
Ameya Bendre¹, Ola Nilsson¹
¹Department of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden

P209 Lipocalin-2 (LCN2) increases after acute exercise but is dispensable for muscle physiology
Marco Ponzetti¹, Argia Ucci¹, Antonio Maurizi¹, Anna Teti¹, Nadia Rucci¹
¹Biotechnological and Applied Clinical Sciences, University of L’Aquila, L’Aquila, Italy

P210 The protective effect of IL12/23 p40 neutralizing antibody in sarcopenia induced by chronic inflammatory bowel disease
Jun-II Yoo¹, Young-Kyun Lee², Deog Yoon Kim³, Yong-Chan Ha⁴, KSBMR2020
¹Gyeongsang University Hospital, Jinju, Korea, Republic of, ²Seoul National University Bundang Hospital, Sungnam, Korea, Republic of, ³Kyunghree University, Seoul, Korea, Republic of, ⁴Chung-Ang University College of Medicine, Seoul, Korea, Republic of

P211 Subchondral perfusion physiology during weight bearing
Michael Beverly¹, David Murray²
¹OOEC, Botnar Research Centre, NDORMS, University of Oxford, Richmond, United Kingdom, ²University of Oxford, Oxford, United Kingdom

P212 The impact of intravenous use of mesenchymal stem cells in a damaged tibia on the indicators of antioxidant system in the calf muscles
Elena Demianenko¹, Vladyslav Luzin¹, Pavel Boychenko¹
¹State Establishment of Lugansk People’s Republic Saint Luka Lugansk State Medical University, Lugansk, Ukraine

P213 Ultra high field MRI (150 micron) assessment of the structural elements of the knee enthese in healthy subjects
Damien Roche¹, Constance Michel¹, Pierre Daudé², Arnaud Le Troter², Christophe Chagnaud³, Jean-Pierre Mattei¹, Lauriane Pini², Maxime Guye², David Bendahan³, Sandrine Guis¹
¹Rheumatology, Aix-Marseille Université, AP-HM, Marseille, France, ²CRMBM-CEMEREM, UMR CNRS 7339, Aix-Marseille Université, CNRS, Marseille, France, ³Radiology, Aix-Marseille University, AP-HM, Marseille, France

P214 Role of sarcopenia in the old patients combined with sagittal imbalance
Ye-Soo Park¹, Jin-Sung Park², Byung-Jik Kang¹
¹Orthopaedic Surgery, Guri Hospital, Hanyang University, Guri City, Korea, Republic of, ²Orthopaedic Surgery, Samsung Medical Center, Sunngkyunkwan University, Seoul City, Republic of Korea
P218 Association between muscle strength and body composition in osteoporotic patients with vertebral fractures
Larisa Marchenkova¹, Ekaterina Makarova¹, Mikhail Eryomushkin¹, Ekaterina Chesnikova¹, Elena Styzhzhina¹
¹Rehabilitation Department for Somatic Patients, National Medical Research Center for Rehabilitation and Balneology of Ministry of Health of Russian Federation, Moscow, Russian Federation

P219 Cross cultural adaptation of the Korea sarcopenia quality of life (SarQoL) questionnaire
Yong-Chan Ha¹, Young-Kyun Lee², Deog Yoon Kim³, Jun-Il Yoo⁴, KSBMR2020
¹Chung-Ang University College of Medicine, Seoul, Korea, Republic of, ²Seoul National University Borame Hospital, Seoungnam, Korea, Republic of, ³Kyunghy University, Seoul, Korea, Republic of, ⁴Gyeongsang University Hospital, Junju, Korea, Republic of

P220 Effects of osteo-sarcopenia on postoperative functional outcome and subsequent fracture in elderly hip fracture
Kyoung Ho Moon¹, Gi Cheol Bae¹
¹Orthopedic Surgery, Inha University College of Medicine, Incheon, Korea, Republic of

P221 Mindfulness and modified medical yoga improve quality of life in persons with osteoporotic vertebral fracture – a randomized controlled trial
Catrin Willerton¹, Paul Enthoven², Anna Spângeus², Ann-Charlotte Grahn Kronhed¹
¹University of Linköping, Vadstena, Sweden, ²University of Linköping, Linköping, Sweden

P222 Muscle density, but not size, correlates well with muscle performance
Ling Wang¹, Lu Yin², Giuseppe Guglielmi³, Xiaoguang Cheng⁴, Glen M. Blake⁵, Klaus Engelke⁶
¹Department of Radiology, Beijing Jishuitan Hospital, Beijing, China, ²National Center for Cardiovascular Disease, China, Beijing, China, ³University of Foggia, Foggia, Italy, ⁴Beijing Jishuitan Hospital, Beijing, China, ⁵King’s College London, St Thomas’ Hospital, London, United Kingdom, ⁶FAU, University Hospital, Erlangen, Germany

P223 Associations between prenatal indicators of mechanical loading and proximal femur shape: Findings from the UK Avon Longitudinal Study of Parents and Children (ALSPAC)
Monika Frysz¹,², Jon Tobias¹,², Deborah Lawlor²,³,⁴, Richard Aspden⁵, Jenny Gregory⁵, Alex Ireland⁶
¹Musculoskeletal Research Unit, Translational Health Sciences, Bristol Medical School, University of Bristol, Bristol, United Kingdom, ²MRC Integrative Epidemiology Unit, University of Bristol, Bristol, United Kingdom, ³Population Health Science, Bristol Medical School, University of Bristol, Bristol, United Kingdom, ⁴Bristol NIHR Biomedical Research Centre, Bristol, United Kingdom, ⁵Aberdeen Centre for Arthritis and Musculoskeletal Health, School of Medicine, Medical Sciences and Nutrition, University of Aberdeen, Aberdeen, United Kingdom, ⁶Musculoskeletal Science and Sports Medicine Research Centre, Department of Life Sciences, Manchester Metropolitan University, Manchester, United Kingdom

P224 Measurements of muscle parameters in computed tomography slices can predict presence of sarcopenia
Ho-Yeon Chung¹, Wan Kyu Eo², Soomin An³
¹Department of Endocrinology and Metabolism, Kyung Hee University, School of Medicine, Seoul, Korea, Republic of, ²Department of Medical Oncology/Hematology, Kyung Hee Univ Hosp at Gangdong, Seoul, Korea, Republic of, ³College of Nursing Science, Kyung Hee University, Seoul, Korea, Republic of

P225 Sarcopenia in an integrated occupational project aimed at elderly patients with femoral fractures due to bony brittleness
Ferdinando D’Amico¹, Rossella D’Amico²
¹Geriatrics, Hospital of Patti - Health Authority Messina - School of Medicina Messina, Messina, Italy, ²Health Authority Messina, Geriatric Extended Care Network, Messina, Italy
P226  Preoperative measurements of muscle parameters in computed tomography slices can predict clinical outcomes in patients with gastric cancer who underwent curative surgical resection
Wan Kyu Eo1, Soomin Ahn2, Ho-Yeon Chung3, Sookyung Lee4, Sehyun Kim5, Jungmi Kwon1
1Department of Medical Oncology/Hematology, Kyung Hee Univ Hosp at Gangdong, Seoul, Korea, Republic of, 2College of Nursing Science, Kyung Hee University, Seoul, Korea, Republic of, 3Department of Endocrinology and Metabolism, Kyung Hee University, School of Medicine, Seoul, South Korea, Seoul, Korea, Republic of, 4Department of Clinical Korean Medicine, Graduate School, Kyung Hee University, Seoul, Korea, Republic of, 5Graduate School, Dankook University, Yongin, Korea, Republic of

P227  Methodology for determining the muscle mass decreasing in young men with type 1 diabetes
Yuliya Dydyshka1, Alla Shepelkevich1
1Department of Endocrinology, Belarusian State Medical University, Minsk, Belarus

P228  Short-term mandibular change, by Norland DXA, in osteoporotic patients treated with Vitamin K
Yun Sun1, Tom V Sanchez2, Ke Qin Pan1, Chad A Dudzek2, Jing Mei Wang3
1Department of Radiology, Hospital of Tsinghua University, Beijing, China, 2Department of Research and Development, Norland at Swissray, Fort Atkinson, United States, 3Department of Research and Development, Norland at Swissray, Beijing, China

P229  Regional osteoporosis; the impact of monoparesis and hemiparesis on bone density
Atef Michael1
1Russells Hall Hospital, Dudley, United Kingdom

P231  Static and dynamic balance function in patients with osteoporotic vertebral fractures
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1Rehabilitation Department for Somatic Patients, National Medical Research Center for Rehabilitation and Balneology of Ministry of Health of Russian Federation, Moscow, Russian Federation

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Linda Skingle1, Stephen M McDonnell2, Phillip Johnston3, Gavin P R Clunie4, Kenneth E S Poole5
1Department of Medicine, Cambridge NIHR Biomedical Research Centre, Cambridge, United Kingdom, 2Division of Trauma and Orthopaedic Surgery, University of Cambridge, Cambridge, United Kingdom, 3Department of Trauma and Orthopaedics, Cambridge University Hospitals NHSFT, Cambridge, United Kingdom, 4Department of Rheumatology, Cambridge University Hospitals NHSFT, Cambridge, United Kingdom, 5Department of Medicine, University of Cambridge, Cambridge, United Kingdom

P235  The effectiveness of the Fracture Risk Evaluation Model (FREM) in predicting major osteoporotic fractures and hip fractures: A register-based cohort study
Michael Kriegbaum Skjødt1,2, Sören Möller1, Mette Bliddal1, Nana Hylid1, Jens Søndergaard1, Bo Abrahamsen1,2,3, Katrine Hass Rubin1
1Department of Medicine, Holbæk Hospital, Holbæk, Denmark, 2OPEN, Open Patient data Explorative Network, Department of Clinical Research, University of Southern Denmark and Odense University Hospital, Odense, Denmark, 3The Research Unit of General Practice, Department of Public Health, University of Southern Denmark, Odense, Denmark, 4NDORMS, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, Oxford University, Oxford, United Kingdom
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¹Department of Odontostomatological and Maxillo-Facial Sciences, Umberto I Hospital, University Sapienza, Roma, Italy, ²Department of Clinical, Internal, Anesthesiological and Cardiovascular Sciences, ‘Sapienza’ Rome University, Rome, Italy, ³Department of Radiological Sciences, Oncology and Anatomo-Pathology, University Sapienza, Rome, Italy

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Joeri Nicolaes¹,², Steven Raeymaeckers³, David Robben²,⁴, Guido Wilms⁵, Dirk Vandermeulen⁴, Cesar Libanati¹, Marc Debois¹  
¹UCB Pharma, Brussels, Belgium, ²Medical Image Computing, ESAT-PSI, Department of Electrical Engineering, KU Leuven, Leuven, Belgium, ³Department of Radiology, University Hospital Brussels, Brussels, Belgium, ⁴icometrix, Leuven, Belgium, ⁵Department of Radiology, KU Leuven, Leuven, Belgium

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Daniel D G Chappell¹, Simona D’Amore⁶, Keenan Brown⁶, Emma Gerety⁶, Kenneth E S Poole⁶  
¹Department of Medicine, Cambridge NIHR Biomedical Research Centre, Cambridge, United Kingdom, ²Department of Medicine, University of Cambridge, Cambridge, United Kingdom, ³Mindways Software, Austin, United States, ⁴Department of Radiology, Cambridge University Hospitals NHSFT, Cambridge, United Kingdom

P239  **MRI assessment of bone microarchitecture in Human Bone samples: The issue of air bubbles artefacts**  
Enrico Soldati¹, David Bendahan², Martine Pithioux², Jerome Vicente¹  
¹IUSTI, AixMarseille University, Marseille, France, ²CRMBM, Marseille, France, ³ISM, AixMarseille University, Marseille, France

P240  **Trabecular bone microarchitecture: A comparative analysis between high field, ultra high field MRI and X-ray micro CT in humans anatomical samples**  
Enrico Soldati¹, Martine Pithioux², Jerome Vicente¹, David Bendahan³  
¹IUSTI, AixMarseille University, Marseille, France, ²CRMBM, Marseille, France, ³ISM, AixMarseille University, Marseille, France

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François De Guio¹, El Hassen Ahmed¹, Enisa Shevroja², Olivier Lamy², Franck Michelet¹, Didier Hans³  
¹Medimaps, Canéjan, France, ²Lausanne University Hospital, Lausanne, Switzerland, ³Lausanne University Hospital and Medimaps, Lausanne, Switzerland

P242  **Morphodensitometry in patients with diabetes**  
Karen Vartanyan¹  
¹Radiotherapy and Radiology, Russian Academy of Advanced Medical Studies, Moscow, Russian Federation

P243  **Usefulness of new technologies based on dual-energy x-ray absorptiometry in patients with growth hormone deficiency or acromegaly**  
Antonia García-Martín¹,², Sheila González-Salvaterra¹,², Beatriz García-Fontana¹,², María Dolores Avilés-Pérez³, Enrique Moratalla¹, Rafael Nieto¹, Diego Becerra¹, Luis Gracia-Marcos³, Manuel Muñoz-Torres⁵
P244 Prevalence of non modifiable and modifiable risk factors of osteoporosis in health care workers of < 40 years at tertiary health centre of remote india  
Amit Saraf  
1TMU, Amritsar, India

P245 The assessment of osteoporosis and fracture risk in patients undergoing medical rehabilitation  
Larisa Marchenkova 1, Ekaterina Makarova 1  
1Rehabilitation Department for Somatic Patients, National Medical Research Center for Rehabilitation and Balneology of Ministry of Health of Russian Federation, Moscow, Russian Federation

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Ju-Yang Jung 1, Sang-Tae Choi 2, Seong-Ryul Kwon 3, Hyoun-Ah Kim 4, Sung-Soo Kim 5, Sang Hyon Kim 6, Chang-Hee Suh 7  
1Ajou University of Medical School, Suwon, Korea, Republic of, 2Chung-Ang University College of Medicine, Seoul, Korea, Republic of, 3Inha University College of Medicine, Seoul, Korea, Republic of, 4Ulsan University College of Medicine, Gangneung, Korea, Republic of, 5Keimyung University College of Medicine, Daegu, Korea, Republic of

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Elin Uzunel 1, Hans Lundin 1, Per Wändell 1, Helena Salminen 1  
1Neurobiology, Care Sciences and Society, Karolinska Institutet, Huddinge, Sweden

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Young-Kyun Lee 1, Dong Won Byun 2, Deog-Yoon Kim 3, Ha-Young Kim 4, Youjin Lee 3, Yong-Chan Ha 3, Ho-Yeon Chung 3, SNUBH-KSBMR  
1Seoul National University Bundang Hospital, Seongnam, Korea, Republic of, 2Soochunhyang University Hospital, Seoul, Korea, Republic of, 3Kyung Hee University Medical Center, Seoul, Korea, Republic of, 4Wonkwang University Sanbon Hospital, Gunpo, Korea, Republic of, 5National Cancer Center, Goyang, Korea, Republic of, 6Orthopedic Surgery, Chung-Ang University College of Medicine, Seoul, Korea, Republic of

P249 Incidence and mortality of subsequent vertebral fractures: analysis of claims data of the Korea National Health Insurance Service from 2007 to 2016  
Young-Kyun Lee 1, Yong-Chan Ha 3, Deog-Yoon Kim 3, Dong Won Byun 4, Youjin Lee 3, Ha-Young Kim 4, Ho-Yeon Chung 3, SNUBH-KSBMR  
1Seoul National University Bundang Hospital, Seongnam, Korea, Republic of, 2Orthopedic Surgery, Chung-Ang University College of Medicine, Seoul, Korea, Republic of, 3Kyung Hee University Medical Center, Seoul, Korea, Republic of, 4Soochunhyang University Hospital, Seoul, Korea, Republic of, 5National Cancer Center, Goyang, Korea, Republic of, 6Wonkwang University Sanbon Hospital, Gunpo, Korea, Republic of

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1KU Leuven, Leuven, Belgium, 2University Hospitals Leuven, Leuven, Belgium, 3GEOMAR Helmholtz Center for Ocean Research, Kiel, Germany, 4University of Liège, Liège, Belgium, 5Mayo Clinic, Rochester, United States

P252 Awareness of osteoporosis and adherence in treatment in Greece
George Trovas, Efthymia Karlafti, Symeon Tournis, Kalliopi Lampropoulou-Adamidou, Eriona Ibro, Iseme Donatsa
1National and Kapodistrian University of Athens, Athens, Greece

P253 Identification of bone fragility risk by a self-assessment in an orthopaedic surgery unit
Odile Reynaud Levy, Xavier Flecher, Damien Lami, Pierre Olivier Pinelli, Mathieu Ollivier, Jean Noel Argenson
1APHM, Marseille, France, 2Orthopaedic Surgery, APHM Ste Marguerite, Marseille, France

P254 Using machine learning approaches and genomic data for fracture risk prediction in the US older men
Qing Wu
1University of Nevada, Las Vegas, United States

P255 Ultrastructure of bone mineral of the hipbone after tibia fracture and oral intake of calcium drugs
Artur Koch'jan, Lyudmila Savenko, Anna Samokish, Dmitry Kolesnikov, Anna Govorova, Yuliya Vesenko
1SBHI ‘Staritskaya CDH’, Staritsa, Russian Federation, 2State Establishment of Lugansk People’s Republic Saint Luka Lugansk State Medical University, Lugansk, Ukraine

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1Imperial College London, London, United Kingdom

P257 The potential for opportunistic identification of vertebral fractures in patients undergoing a CT scan as part of daily clinical practice: Descriptive study using registry data
Michael Kriegbaum Skjødt, Joeri Nicolaes, Christopher Dyer Smith, Jonas Banefelt, Florence Lebon, Cesar Libanati, Kim Rose Olsen, Cyrus Cooper, Bo Abrahamsen
1Department of Medicine, Holbæk Hospital, Holbæk, Denmark, 2OPEN, Open Patient data Explorative Network, Odense University Hospital, Odense, Denmark, 3UCB Pharma, Anderlecht, Belgium, 4Department of Clinical Research, University of Southern Denmark, Odense, Denmark, 5Quantify Research, Stockholm, Sweden, 6Danish Centre for Health Economics, University of Southern Denmark, Odense, Denmark, 7MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton General Hospital, Southampton, United Kingdom, 8NDORMS, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom
P258  Trabecular bone score in subjects with type 1 diabetes and advanced diabetic nephropathy
Šimona Kratochvílová¹, Jana Brunová¹
¹Diabetes Centre, Institute for Clinical and Experimental Medicine, Prague, Czech Republic

P259  Opposite associations for trabecular and cortical volumetric bone mineral density with Coronary Artery Calcification score: the SCAPIS Pilot study
Thomas Funck-Brentano¹,², Louise Grahnemo³, Ola Hjelmgren³, John Brandberg³, Göran Bergström⁵, Claes Ohlsson⁵
¹Rheumatology, Université de Paris, Paris, France, ²Department of Internal Medicine and Clinical Nutrition, Center for Bone and Arthritis Research, Institute of Medicine, the Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, ³Department of Molecular and Clinical Medicine, the Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, ⁴Department of Radiology, Institute of clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, ⁵Department of Clinical Physiology, Sahlgrenska University Hospital, University of Gothenburg, Gothenburg, Sweden

P260  Persistence of fractures in bisphosphonate-treated patients reveals enhanced osteoclast number in trabecular bone despite low remodeling
Bastien Leger¹, Eugenie Koumakis², Caroline Marty¹, Patrice Fardellone³, Catherine Cormier², Martine Cohen-Solal¹
¹Hopital Lariboisiere, Inserm U1132 and Université de Paris, Paris, France, ²Department of Rheumatology, Université de Paris, Hopital Cochin, Paris, France, ³Department of Rheumatology, Université d’Amiens, Amiens, France

P261  Causal assessment of the association between bone mineral density and the risk of dementia
Samuel Ghatan¹, Katerina Trajanoska¹, Petra Proitsi¹, M Afran Ikram³, Andre Utterlinden¹, Angela Hodges⁴, Ling Oei¹, Fernando Rivadeneira¹
¹Internal Medicine, Erasmus University Medical Center, Rotterdam, The Netherlands, ²Maurice Wohl Clinical Neuroscience Institute, Institute of Psychiatry, Psychology and Neuroscience, King’s College London, London, United Kingdom, ³Epidemiology, Erasmus University Medical Center, Rotterdam, The Netherlands, ⁴Institute of Psychiatry, King’s College London, London, United Kingdom

P262  Height loss in postmenopausal women with lumbar scoliosis
Nikola Kirilov¹, Elena Kirilova¹, Svilen Todorov¹, Martin Nikolov¹, Nikolay Nikolov¹
¹UMBAL Dr Georgi Stranski, Pleven, Bulgaria

P263  Osteoporosis, bent posture and risk of fall in elderly women
Ferdinando D’Amico¹, Rossella D’Amico²
¹Geriatrics, Hospital of Patti - Health Authority Messina - School of Medicina Messina, Patti, Italy, ²Geriatric Extended Care Network, Messina, Italy

P264  Phase I/III study to confirm bioequivalence and safe switching of proposed biosimilar denosumab in postmenopausal osteoporosis
Jean-Jacques Body¹, Christie Nie², Barbara Vogg³, Richard Eastell⁴
¹Department of Medicine, CHU Brugmann, Université Libre de Bruxelles, Brussels, Belgium, ²Biopharma Clinical Development, Sandoz Inc., Princeton, United States, ³Department of Clinical Development, Hexal AG, a Sandoz company, Holzkirchen, Germany, ⁴Metabolic Bone Centre, Northern General Hospital, Sheffield, United Kingdom

P265  Osteoporosis treatment gap in the FRISBEE cohort
Laura Iconaru¹, Celeste Smey¹, Felicia Baleanu¹, Virginie Kinnard¹, Michel Moreau², Silvie Cappelle¹, Murielle Surquin¹, Michel Rubinstein², Serge Rozemberg², Marianne Paesmans², Rafik Karmali³, Pierre Bergmann⁴, Jean-Jacques Body¹
P266  Severe rebound effect and multiple fractures after denosumab discontinuation in patient with chronic kidney disease stage 5
Sergei Mazurenko¹, Svetlana Feofanova²
¹Medical Faculty, Saint Petersburg State University, Saint Petersburg, Russian Federation, ²Endocrinology, Leningrad Regional Hospital, Saint Petersburg, Russian Federation

P267  A case of atypical femur fracture during long-term treatment with bisphosphonates
Kira Zotkina¹
¹National Research Almazov Centre, Saint-Petersburg, Russian Federation

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Larisa Marchenkova¹, Ekaterina Makarova¹, Mikhail Eryomushkin¹, Valeria Vasileva¹
¹Rehabilitation Department for Somatic Patients, National Medical Research Center for Rehabilitation and Balneology of Ministry of Health of Russian Federation, Moscow, Russian Federation

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Margaret A Paggiosi¹, Nicola Peel¹, Eugene McCloskey¹, Jennifer S Walsh¹, Richard Eastell¹
¹Oncology and Metabolism, The University of Sheffield, Sheffield, United Kingdom, ²Metabolic Bone Centre, Northern General Hospital, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, United Kingdom

P270  Clinical and radiological results of teriparatide treatment in patients with osteoporotic sacral fractures
Stamatis-Theodoros Chatzopoulos¹, Dimitrios Begkas¹, Alexia Balanika², Georgios Georgiadis³, Christos Baltas³, Alexandros Pastroudis¹
¹6th Orthopedic Department, G.H Asklepieion of Voula, Voula, Greece, ²Computed Tomography Department, G.H Asklepieion of Voula, Voula, Greece, ³4th Orthopedic Department, G.H Asklepieion of Voula, Voula, Greece, ⁴Radiological Imaging Department, G.H. G. Gennimatas, Athens, Greece

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Dimitrios Begkas¹, Stamatis-Theodoros Chatzopoulos¹, Georgios Georgiadis², Christos Baltas³, Alexia Balanika⁴, Alexandros Pastroudis¹
¹6th Orthopedic Department, G.H Asklepieion of Voula, Voula, Greece, ²Computed Tomography Department, G.H Asklepieion of Voula, Voula, Greece, ³4th Orthopedic Department, G.H Asklepieion of Voula, Voula, Greece, ⁴Radiological Imaging Department, G.H. G. Gennimatas, Athens, Greece

P272  Bisphosphonate drug holiday in treatment planning of dental patients
Jeong Keun Lee¹,², Hoon Myoung³
¹Oral and Maxillofacial Surgery, Institute of Oral Health Science, Ajou University School of Medicine, Suwon, Korea, Republic of, ²Oral and Maxillofacial Surgery, Ajou University Dental Hospital, Suwon, Korea, Republic of, ³School of Dentistry, Seoul National University, Seoul, Korea, Republic of

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1Department of Medicine III, Technische Universität Dresden Medical Center, Dresden, Germany, 2Center for Healthy Aging, Technische Universität Dresden Medical Center, Dresden, Germany, 3Department of Endocrinology, 242 General Military Hospital, Thessaloniki, Greece, 4251 Hellenic Air Force & VA General Hospital, Department of Medical Research, Athens, Greece, 5Center for Regenerative Therapies Dresden, Technische Universität Dresden, Dresden, Germany, 6Department of Medical Research, 251 Hellenic Air Force & VA General Hospital, Athens, Greece, 7Endocrinology Unit, 1st Department of Propaedeutic Internal Medicine, National and Kapodistrian University of Athens, UOA, LAIKO General Hospital, Athens, Greece

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Kwangkyoun Kim1  
1Orthopedic Surgery, Konyang University, Daejeon, Korea, Republic of

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Anne Sophie Sølling1, Diana Hedevang Christensen2, Bianka Darvalics2, Torben Harsløf3, Reimar Wernich Thomsen4, Bente Langdahl5  
1Department of Endocrinology and Internal Medicine, Aarhus University Hospital, Aarhus, Denmark, 2Department of Clinical Epidemiology, Aarhus University Hospital, Aarhus, Denmark

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Thomas Emmanuel1, Julius Simoni Leere2, Christian Kruse1,2, Trine Holmgaard Poulsen1, Peter Vestergaard1,2,3  
1Department of Endocrinology, Aalborg University Hospital, Aalborg, Denmark, 2Department of Clinical Medicine, Aalborg University Hospital, Aalborg, Denmark, 3Steno Diabetes Center North Jutland, Aalborg, Denmark

P278  Effect of denosumab on circulating markers of atherosclerosis in women with postmenopausal osteoporosis  
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1Department of Clinical Internal Medicine, Cardiovascular and Anesthesiological Sciences, Sapienza University of Rome, Rome, Italy, 2Faculty of Economics, UNINT University, Rome, Italy

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Dilsad Sindel1, Ekin Ilke Sen1, Ayse Yaliman1, Sina Arman1  
1Physical Medicine and Rehabilitation, Istanbul University, Istanbul Faculty of Medicine, Istanbul, Turkey

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Md Azharuddin1, Mohammad Adil2, Pinaki Ghosh3, Prem Kapur4, Manju Sharma1,2  
1Pharmaceutical Medicine, Division of Pharmacology, School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi, India, 2Pharmacology, School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi, India,
P281 Effect of the complex physical rehabilitation on postural control in patients with osteoporotic vertebral fractures
Ekaterina Makarova¹, Larisa Marchenkova¹
¹Somatic Rehabilitation, Anti-Aging and Reproductive Health Department, FSBI “National Medical Research Center of Rehabilitation and Balneology” Ministry of Health of Russian Federation, Moscow, Russian Federation

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Ekaterina Makarova¹, Larisa Marchenkova¹
¹Somatic Rehabilitation, Anti-Aging and Reproductive Health Department, FSBI “National Medical Research Center of Rehabilitation and Balneology” Ministry of Health of Russian Federation, Moscow, Russian Federation

P283 Investigation on the impact of hops flavonoid extracts on the structural and mechanical properties of rat bone tissue
Anna Nikodem¹, Jaroslaw Filipiak¹, Agniesza Matuszewskaa², Beata Nowak²
¹Mechanical Department, Wroclaw University of Science and Technology, Wroclaw, Poland, ²Department of Pharmacology, Wroclaw Medical University, Wroclaw, Poland

P284 Postoperative acute kidney injury after osteoporotic hip hip fractures in elderly patients
Joon-Soon Kang¹
¹Inha University College of Medicine, Incheon, Korea, Republic of

P285 Melatonin alleviates vascular calcification and ageing through exosomal miR-204/miR-211 cluster in a paracrine manner
Feng Xu¹, Jia-Yu Zhong², Ling-Qing Yuan¹
¹Department of Metabolism and Endocrinology, Hunan Provincial Key Laboratory of Metabolic Bone Diseases, National Clinical Research Center for Metabolic Diseases, the Second Xiangya Hospital of Central South University, Changsha, China, ²Department of Geriatrics, Institute of Aging and Age-related Disease Research, the Second Xiang-Ya Hospital, Central South University, Changsha, China

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Lingwei Huang¹, Ilari Riihioja², Petri Tanska¹, Simo Ojanen¹,³, Sanna Turunen¹, Heikki Kröger², Simo Saarakkala¹,², Walter Herzog³, Rami Korhonen³, Mikko Finnilä¹,³
¹Department of Applied Physics, University of Eastern Finland, Kuopio, Finland, ²Department of Orthopedics, Kuopio University Hospital, Kuopio, Finland, ³Research Unit of Medical Imaging, Physics and Technology, University of Oulu, Oulu, Finland, ⁴Cancer and Translational Medicine Research Unit, University of Oulu, Oulu, Finland, ⁵Department of Diagnostic Radiology, Oulu University Hospital, Oulu, Finland, ⁶Human Performance Laboratory, University of Calgary, Calgary, Canada

P288 Measurements of bone microarchitecture by histology, microCT and HRpQCT in CKD patients
Eva Benillouche¹, Agnes Ostertag¹, Caroline Marty¹, Pablo Urena Torres², Martine Cohen-Solal¹
¹Hôpital Lariboisière, Inserm U1132 and Université de Paris, Paris, France, ²Nephrology, Aura Nord, Saint-Ouen, France

P289 Real-time impedance-based monitoring of the growth and inhibition of osteomyelitis pathogen Staphylococcus aureus biofilms treated with novel bisphosphonate-fluorquinolone antimicrobial conjugates
Parish Sedghizadeh¹, Esmat Sodagar¹, Natalia Tjokro¹, Shuting Sun², Adam Junka³, Philip Cherian², Jeffrey Neighbors³, Graham Russell⁵, Charles McKenna⁶, Frank Ebetino²
¹School of Pharmacy, University of British Columbia, Vancouver, British Columbia, Canada, ²Department of Medicine, University of British Columbia, Vancouver, British Columbia, Canada, ³Department of Pathology, University of British Columbia, Vancouver, British Columbia, Canada, ⁴Department of Pathology, University of British Columbia, Vancouver, British Columbia, Canada, ⁵Department of Radiology, University of British Columbia, Vancouver, British Columbia, Canada, ⁶Department of Pathology, University of British Columbia, Vancouver, British Columbia, Canada
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Daniela Monova 1, Simeon Monov 2, Dobrina Mluchkova 3, Maria Stambolova 4 
1Department of Internal Medicine, Nephrology and Rheumatology, Medical University - Sofia, Medical Institute, Sofia, Bulgaria, 2Department of Internal Medicine, Clinic of Rheumatology, Medical University - Sofia, Sofia, Bulgaria, 3Department of Imaging Diagnostic, Medical Institute - MVR, Sofia, Bulgaria, 4Department of Internal Medicine, Nephrology and Rheumatology, Medical Institute - MVR, Sofia, Bulgaria

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1Konyang University Hospital, Daejeon, Korea, Republic of, 2Eulji University School of Medicine, Daejeon, Korea, Republic of

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1Endocrinology-University of Medicine and Pharmacy Carol Davila Bucharest, Bucharest, Romania, 2Elia University Hospital, Bucharest, Romania

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Maria Del Pilar Ahijado Guzman 1, Raul Maria Veiga Cabello 2, Miguel Cantalejo Moreira 1, Justo Ruiz Ruiz 1, Antonio Zapatero Gaviria 1 
1Rheumatology, Htal Universitario de Fuenlabrada, Fuenlabrada, Spain, 2Rheumatology, Hospital Central de la Defensa Gómez Ulla, Madrid, Spain, 3Internal Medicine, Htal Universitario de Fuenlabrada, Fuenlabrada, Spain

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1Rheumatology, University Hospital of Heraklion, Heraklion, Greece, 2Pathology, University of Crete, Medical School, Heraklion, Greece, 3Orthopaedic Surgery, University Hospital of Heraklion, Heraklion, Greece

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Marzia Pasquali 1, Lida Tartaglione 1, Silverio Rotondi 1, Natalia De Martini 1, Daniele Diacinti 1, Sandro Mazzaferro 1 
1Nephrology, Policlinico Umberto I, Sapienza University, Rome, Italy, 2Policlinico Umberto I, Sapienza University, Rome, Italy, 3ICOT, Latina, Italy, 4Radiology, Policlinico Umberto I, Sapienza University, Rome, Italy

P298  Increased PTH maintains bone mineral density in patients with CKD  
Pierre-Emmanuel Cailleaux 1, Agnes Ostertag 1, Pascal Houillier 2, Marie Metzger 3, Martin Flamant 4, Pablo Urena Torres 4, Martine Cohen-Solal 4 
1Hopital Lariboisiere, Inserm U1132 and Université de Paris, Paris, France, 2Department of Physiology, Université de Paris, Paris, France, 3Epidémiologie Rénale et Cardiovasculaire, INSERM U-1018 and Université Saint-Quentin, Villejuif, France, 4Nephrology, Aura Nord, Saint-Ouen, France
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<td><strong>Sylvie Coupaud</strong>, Mariel Purcell</td>
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<td>1 Biomedical Engineering, University of Strathclyde, Glasgow, United Kingdom, 2 Queen Elizabeth National Spinal Injuries Unit, NHS Greater Glasgow &amp; Clyde, Glasgow, United Kingdom</td>
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<td>1 Unit of Endocrinology, Campus Bio-Medico, Rome, Italy, 2 Unit of Endocrinology and Metabolic Diseases, CTO A. Alesini Hospital, University Tor Vergata, Rome, Italy, 3 Department of Endocrinology, San Giovanni Addolorata Hospital, Rome, Italy, 4 Unit of Geriatric, Campus Bio-Medico, Rome, Italy, 5 Unit for Bone Metabolism Diseases and Diabetes &amp; Laboratory of Endocrine and Metabolic Research, Istituto Auxologico Italiano, IRCCS, Milan, Italy, 6 Metabolic Bone Diseases Unit, Division of Endocrinology, Department of Medicine, College of Physician and Surgeons, Columbia University, New York, United States, 7 Thyroid and Metabolic Bone Diseases Center, Santa Maria Goretti Hospital, Latina, Italy</td>
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<td>1 Catholic University of Korea, Incheon, Korea, Republic of, 2 Internal Medicine, Catholic University of Korea, Incheon, Korea, Republic of</td>
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<td>1 UMR-1132, BIOSCAR, INSERM, Paris, France</td>
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<td>1 Department of Endocrinology, Key Laboratory of Endocrinology, National Health and Family Planning Commission, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China, 2 Department of Neurology, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China</td>
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<td><strong>Silvia Vai</strong>, Francesca Broggi, Carla Colombo, Luciana Ghio, Alberto Edefonti, Fabrizia Corona, Gabriella Nebbia, Maria Luisa Bianchi</td>
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<td>1 Experimental Laboratory for Children’s Bone Metabolism Research, Istituto Auxologico Italiano IRCCS, Milano, Italy, 2 Pediatric Clinic, University of Milano, Milano, Italy</td>
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<td>1 Institute for Human Genetics, Biocenter, Würzburg, Germany, 2 Zoological Institute, University of Cologne, Cologne, Germany, 3 Orthopedic Department, University of Würzburg, Würzburg, Germany</td>
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<td><strong>Robert Brommage</strong></td>
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Wei Zhou¹, Denise van de Laarschot¹, Annemieke Verkerk¹, Carola Zillikens¹
¹Erasmus Medical Center, Rotterdam, The Netherlands

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Valentina Capo¹, Sara Penna¹,², Ivan Merelli³, Matteo Barcella¹, Serena Scala¹, Luca Basso-Ricci¹, Elena Draghici¹, Eleonora Palagano⁴, Erika Zonari⁴, Paolo Uva⁴, Roberto Cusano⁶, Alessandro Aiuti¹, Francesca Ficara⁴, Cristina Sobacchi⁴,⁵, Bernhard Gentner¹, Anna Villa¹,⁴
¹San Raffaele Telethon Institute for Gene Therapy, IRCSS San Raffaele Scientific Institute, Milan, Italy, ²DIMET, University of Milano-Bicocca, Monza, Italy, ³Institute for Biomedical Technologies, National Research Council, Segrate, Italy, ⁴CNR-IRGB, Milan Unit, Milan, Italy, ⁵Humanitas Clinical and Research Center - IRCCS, Rozzano, Italy, ⁶CRS4, Science and Technology Park Polaris, Pula, Italy

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Sara Penna¹,², Stefania Crippa¹, Valentina Capo¹, Ludovica Santi¹, Roberto Bosotti¹, Mara Riminucci¹, Alessandro Corsi¹, Marta Serafini², Bernhard Gentner¹, Alessandro Aiuti¹, Maria Ester Bernardo¹, Anna Villa¹,⁴
¹San Raffaele-Telethon Institute for Gene Therapy, IRCSS San Raffaele Scientific Institute, Milan, Italy, ²University of Milano-Bicocca, School of Medicine and Surgery, Monza, Italy, ³Department of Molecular Medicine Sapienza University, Rome, Italy, ⁴CNR-IRGB, Milan Unit, Milan, Italy

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Tim Rolvien¹, Timur A. Yorgan², Uwe Kornak³, Irm Hermans-Borgmeyer⁴, Stefan Mundlos³, Tobias Schmidt³, Andreas Niemeier³, Thorsten Schinke³, Michael Amling¹, Ralf Oheim²
¹Department of Orthopedics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ²Department of Osteology and Biomechanics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ³Institute of Medical Genetics and Human Genetics, Charité-Universitätsmedizin, Berlin, Germany, ⁴Center for Molecular Neurobiology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ⁵Department of Biochemistry and Molecular Cell Biology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

P311  Phenotypic characterization of human primary mandibular osteoblasts from patients with fibrous dysplasia of bone
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¹EA4691 BIOS, Université de Reims Champagne Ardenne, Reims, France, ²CHU Reims, Pôle de Médecine Bucco-Dentaire, Reims, France, ³CHU de Strasbourg, Strasbourg, France

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¹EA4691 BIOS, Université de Reims Champagne Ardenne, Reims, France, ²Service de Pneumologie, CRCM, Hôpital Cochin, Paris, France, ³URCA-Cyt, Université de Reims Champagne Ardenne, Reims, France

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¹Laboratory of RNA Biology, International Institute of Molecular and Cell Biology in Warsaw, Warsaw, Poland, ²Faculty of Biology, University of Warsaw, Warsaw, Poland, ³Laboratory of Transgenic Models of Diseases, Institute of Molecular Genetics of the Czech Academy of Sciences, Prague, Czech Republic

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Flavia Amadeu de Oliveira¹, Sonoko Narisawa¹, Massimo Bottini¹, José Luis Millán¹
¹Sanford Burnham Prebys Medical Discovery Institute, La Jolla, United States

P316 Regulation of TAZ by DEPTOR controls mesenchymal progenitors lineage commitment in response to PTH1R signaling
Fabiana Csukasi¹, Ivan Duran¹, Michaela Bosakova², Maya Barad¹, Jorge H. Martin¹, Daniel H. Cohn¹, Pavel Krejci³, Deborah Krakow¹
¹University of California Los Angeles, Los Angeles, United States, ²Masaryk University, Brno, Czech Republic

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Raphaël De Ridder¹, Eveline Boudin¹, Joe Ibrahim¹, M. Carola Zillikens², Bram C.J. van der Eerden², Wim Van Hul¹, Geert Mortier¹
¹Center of Medical Genetics, University and University Hospital of Antwerp, Antwerp, Belgium, ²Division of Endocrinology, Department of Internal Medicine, Erasmus Medical Center, Rotterdam, The Netherlands

P318 Fgfr3 gain-of-function mutation impacts bone homeostasis in hypochondroplasia mouse model
Léa Loisay¹, Davide Komla Ebri², Nabil Kaci³, J.H. Duncan Bassett², Graham R. Williams³, Laurence Legeal Mallet¹
¹Institut IMAGINE and Hôpital Necker-Enfants Malades, Paris, France, ²Molecular Endocrinology Laboratory, Department of Metabolism, Digestion and Reproduction, Imperial College London, London, United Kingdom

P319 A skeletal focal adhesion pathway initiated by LAMA5 regulates skeletogenesis
Fabiana Csukasi¹, Pavel Krejci², Deborah Krakow¹, Ivan Duran¹,³
¹University of California Los Angeles, Los Angeles, United States, ²Masaryk University, Brno, Czech Republic, ³University of Malaga, Malaga, Spain

P320 Compound heterozygosity of mutations located in the first and third β-propeller domain of LRP4 causes sclerosteosis in a Spanish patient
Yentl Huybrechts¹, Ellen Steenackers¹, Neveen Hamdy², Geert Mortier¹, Guillermo Martinez³, Milagros Sierra Bracamonte⁴, Natasha Appelman-Dijkstra², Wim Van Hul¹, Eveline Boudin¹
¹Department of Medical Genetics, University of Antwerp and University Hospital of Antwerp, Edegem, Belgium, ²Department of Endocrinology, Leiden University Medical Center, Leiden, The Netherlands, ³Endocrinology and Nutrition Resident, 12 de Octubre University Hospital, Madrid, Spain
P321  Supporting rare and common disease research in mineralized tissues
Jason Wan¹
¹NIH/NIDCR, Bethesda, United States

P322  ENPP1 regulates bone mass via an unidentified catalytically independent mechanism
Demetrios Braddock¹, Kristin Zimmerman¹, Ralf Oheim², Simon v. Kroge³, Paul Stabach¹, Dillon Kavanagh¹, Steven Tommasini³, Thomas Carpenter⁴
¹Pathology, Yale School of Medicine, New Haven, United States, ²Department of Osteology and Biomechanics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ³Orthopaedics and Rehabilitation, Yale School of Medicine, New Haven, United States, ⁴Pediatric Endocrinology, Yale School of Medicine, New Haven, United States

P323  Fate of intracellular retained mutant collagen
Roberta Besio¹, Nadia Garibaldi¹, Nicoletta Gabriella Giannini², Saïd Bendahhou², Antonella Forlino¹
¹Dept of Molecular Medicine, University of Pavia, Pavia, Italy, ²CNRS, Université de Nice-Sophia Antipolis, Nice, France

P324  Mice with deletion of PKA regulatory subunit1A in osteoblasts show severe bone pathology
Carole Le Henaff¹, Brandon Finnie¹, Joshua Johnson¹, Yasaman Nahaei¹, Zhiming He¹, Krishnakali Dasgupta¹, Juhee Jeong¹, Johanna Warshaw¹, Henry M Kronenberg², Lawrence S Kirschner², Nicola C Partridge¹
¹Basic Sciences and Craniofacial Biology, New York University Dental School, New York, United States, ²Endocrine Unit - Massachusetts General Hospital, Harvard Medical School, Boston, United States, ³Department of Cancer Biology and Genetics, Ohio State University, Columbus, United States

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Robert J Pignolo¹, Geneviève Baujat², Matthew A Brown³, Carmen De Cunto¹, Maja Di Rocco³, Edward C Hsiao⁴, Richard Keen⁷, Mona Al Mukaddam⁸, Kim Hanh Le Quan Sang⁹, Andrew Strahs¹⁰, Rose Marino¹⁰, Frederick S Kaplan¹⁰
¹Department of Medicine, Mayo Clinic, Rochester, United States, ²Departement de Genetique, Institut IMAGINE and Hôpital Necker-Enfants Malades, Paris, France, ³Guy’s & Thomas’ NHS Foundation Trust and King’s College London NIHR Biomedical Research Centre, London, United Kingdom, ⁴Pediatric Rheumatology Section, Department of Pediatrics, Hospital Italiano de Buenos Aires, Buenos Aires, Argentina, ⁵Unit of Rare Diseases, Department of Pediatrics, Giannina Gaslini Institute, Genoa, Italy, ⁶Division of Endocrinology and Metabolism, the UCSF Metabolic Bone Clinic, the Institute of Human Genetics, and the UCSF Program in Craniofacial Biology, Department of Medicine, University of California-San Francisco, San Francisco, United States, ⁷Centre for Metabolic Bone Disease, Royal National Orthopaedic Hospital, Stanmore, United Kingdom, ⁸Departments of Orthopaedic Surgery & Medicine, The Center for Research in FOP and Related Disorders, Perelman School of Medicine, University of Pennsylvania, Philadelphia, United States, ⁹Hôpital Universitaire Necker-Enfants Malades, Paris, France, ¹⁰Clementia Pharmaceuticals Inc., Newton, United States

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¹Muenster University Children’s Hospital, Münster, Germany, ²National Human Genome Research Institute, National Institutes of Health, Bethesda, United States, ³ICON plc, Vancouver, Canada, ⁴National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda, United States, ⁵Inozyme Pharma, Boston, United States
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Noah Gruber1,2, Kineret Mazor-Aronovitch1,2, Yael Levy-Shraga1,2
1Pediatric Endocrinology and Diabetes Unit, The Edmond and Lily Safra Children’s Hospital, Sheba Medical Center, Ramat Gan, Israel, 2The Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv, Israel

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1Department of Medicine, Mayo Clinic, Rochester, United States, 2Département de Genetique, Institut IMAGINE and Hôpital Necker-Enfants Malades, Paris, France, 3Guy’s & Thomas’ NHS Foundation Trust and King’s College London NIHR Biomedical Research Centre, London, United Kingdom, 4Pediatric Rheumatology Section, Department of Pediatrics, Hospital Italiano de Buenos Aires, Buenos Aires, Argentina, 5Unit of Rare Diseases, Department of Pediatrics, Giannina Gaslini Institute, Genoa, Italy, 6Division of Endocrinology and Metabolism, the UCSF Metabolic Bone Clinic, the Institute of Human Genetics, and the UCSF Program in Craniofacial Biology, Department of Medicine, University of California-San Francisco, San Francisco, United States, 7Centre for Metabolic Bone Disease, Royal National Orthopaedic Hospital, Stanmore, United Kingdom, 8Departments of Orthopaedic Surgery & Medicine, The Center for Research in FOP and Related Disorders, Perelman School of Medicine, University of Pennsylvania, Philadelphia, United States, 9Clementia Pharmaceuticals Inc., Newton, United States

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1Endocrinology Research Center, Moscow, Russian Federation

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1Oral and Maxillofacial Surgery, Ewha Womans University, Seoul, Korea, Republic of

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1Lille University Hospital, Lille, France, 2APHP - Cochin, Paris, France
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1Department of Internal Medicine, Amsterdam University Medical Center, Amsterdam, The Netherlands, 2Department of Rheumatology, Royal National Orthopaedic Hospital, London, United Kingdom, 3Department of Paediatrics, Klinikum Garmisch-Partenkirchen, Garmisch-Partenkirchen, Germany, 4Research and Development, AstraZeneca, Boston, United States, 5Nuffield Department of Medicine, University of Oxford, Oxford, United Kingdom, 6Department of Epidemiology and Biostatistics, Amsterdam University Medical Center, Amsterdam, The Netherlands, 7Department of Medicine, Brigham and Women's Hospital, Boston, United States

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1Endocrinology, Amsterdam University Medical Center, Amsterdam, The Netherlands, 2Otolaryngology, Leiden University Medical Center, Leiden, The Netherlands, 3Oral Cell Biology and Functional Anatomy, ACTA-University of Amsterdam and VU University, Amsterdam, The Netherlands, 4Oral and Maxillofacial Surgery, Amsterdam University Medical Center, Amsterdam, The Netherlands, 5Clinical Chemistry, Bone and Calcium Metabolism Lab, Amsterdam University Medical Center, Amsterdam, The Netherlands

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1Department of Endocrinology, National Health Commission Key Laboratory of Endocrinology, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China

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1Charité-Universitätsmedizin Berlin, Berlin, Germany, 2University Medical Center Hamburg-Eppendorf, Hamburg, Germany, 3University Hospital Gießen and Marburg, Giessen, Germany, 4Institute for Human Genetics, Universitätsmedizin Göttingen, Göttingen, Germany

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1Division of Pediatric Endocrinology, Department of Women’s and Children’s Health, Karolinska Institute and University Hospital, Stockholm, Sweden, 2Center for Molecular Medicine, Karolinska Institute and University Hospital, Stockholm, Sweden, 3School of Medical Sciences, Örebro University and University Hospital, Örebro, Sweden

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   University Medical Center Ulm, Ulm, Germany, 3Orthopedic Trauma Institute, Department of  
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   1Department of Orthopedics and Anesthesiology, University of Sao Paulo, Ribeirão Preto,  
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¹Oncology and Metabolism, University of Sheffield, Sheffield, United Kingdom, ²Sheffield Hallam University, Sheffield, United Kingdom

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¹Department of Internal Medicine 3, Friedrich-Alexander-University Erlangen-Nürnberg (FAU) and Universitätsklinikum Erlangen, Erlangen, Germany, ²Department of Rheumatology and Clinical Immunology, Medical Center-University of Freiburg, Faculty of Medicine, University of Freiburg, Freiburg, Germany, ³Department of Internal Medicine 4, Friedrich-Alexander-University Erlangen-Nürnberg (FAU) and Universitätsklinikum Erlangen, Erlangen, Germany

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¹Laboratory of Bioingénierie et Biomécanique Ostéo-articulaires - UMR CNRS 7052, Paris 7-Denis Diderot University, Paris, France, ²Laboratory for Vascular Translational Science, Cardiovascular Bioengineering - INSERM U1148, Paris 13 Sorbonne University, Paris, France, ³Department of Periodontology, Service of Odontology,–Pitié Salpetrière Hospital, et Hôtel-Dieu Hospital AP-HP, Paris 7-Denis Diderot University, U.F.R. of Odontology, Paris, France

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Liping Wang¹, Zheng Jing¹, Janak Lal Pathak¹, Lijing Wang², Linhu Ge¹
¹Key Laboratory of Oral Medicine, Guangzhou Institute of Oral Disease, Affiliated Stomatology Hospital of Guangzhou Medical University, Guangzhou, China, ²Vascular Biology Research Institute, School of Life Science and Biopharmaceutics, Guangdong Pharmaceutical University, Guangzhou, China

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¹Clinique équine, Ecole Nationale Veterinaire d'Alfort, Maisons-Alfort, France, ²Laboratoire B3OA UMR CNRS 7052 INSERM U1271, Universite de Paris, Paris, France, ³COST, Universite d’Orléans, Orléans, France

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Xiaoguang Cheng¹, Glen Blake², Ling Wang¹, Karen Hind³
¹Department of Radiology, Beijing Jishuitan Hospital, Beijing, China, ²School of Biomedical Engineering & Imaging Sciences, King’s College London, St Thomas’ Hospital, London, United Kingdom, ³Department of Sport and Exercise Sciences, Durham University, Durham, United Kingdom

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Donatien Ramiandrisoa¹, Sylvie Fernandez², Claudio Araya³, Martine Cohen-Solal⁴, Jean-Gabriel Minonzio¹,⁵,⁶
¹Bleu Solid, Pomponne, France, ²Department of rheumatology, Hôpital Lariboisière, Inserm U1132, USPC Paris-Diderot, Paris, France, ³Escuela de Ingenieria Civil en Informatica, Universidad de Valparaiso, Valparaiso, Chile, ⁴Department of rheumatology,
Hôpital Lariboisière, USPC Paris-Diderot, Paris, France, Centro de Investigación y Desarrollo en Ingeniería en Salud, Universidad de Valparaíso, Valparaíso, Chile, Laboratoire Imagerie Biomédicale, Sorbonne Université, Paris, France

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Julian Stürznickel1, Maximilian Delsmann1, Oliver Semler2, Frank Timo Beil3, Christian Netzer4, Michael Amling1, Ralf Oheim1, Tim Rolvien1,3
1Department of Osteology and Biomechanics (IOBM), University Medical Center Hamburg-Eppendorf, Hamburg, Germany, 2Children’s Hospital, University of Cologne, Germany, Cologne, Germany, 3Department of Orthopedics, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, 4Institute of Human Genetics, University of Cologne, Cologne, Germany

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1Ruhr-University Bochum, Bochum, Germany, 2IRCCS Istituto Ortopedico Rizzoli, Bologna, Italy, 3ERN Bond EPAG Representative ANDO Portugal, Lisabon, Portugal, 4ERN Bond EPAG Representative OIFE, Eindhoven, The Netherlands, 5Fakulti Nemocnice Motole, Prague, Czech Republic, 6Leiden University Medical Center, Leiden, The Netherlands, 7University of Oxford, Oxford, United Kingdom, 8University of Glasgow, Glasgow, United Kingdom, 9Endocrinology, Leiden University Medical Center, Leiden, The Netherlands, 10Assistance Publique - Hopitaux de Paris, Paris, France, 11Otto-von-Guericke-University Magdeburg, Magdeburg, Germany, 12Johannes Kepler University Linz and Kepler University Hospital, Linz, Austria, 13ERN BOND Coordinator, Bologna, Italy

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1Rheumatology Department, Reference Center for Rare Skeletal and Bone Diseases, Cochin Hospital, Paris, France, 2Cochin Hospital, Paris, France, 3Rheumatology Department, Lille, France, 4Rheumatology Department, Poitiers, France, 5Rheumatology Department, Strasbourg, France, 6Rheumatology Department, Saint-Etienne, France, 7Rheumatology Department, Bordeaux, France, 8Rheumatology Department, Lariboisière Hospital, Paris, France, 9Rheumatology Department, Lyon, France, 10Rheumatology Department, Toulouse, France, 11Rheumatology Department, Cochin Hospital, Paris, France
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CHAIRPERSON’S WELCOME AND INTRODUCTION
PROFESSOR VALERIE CORMIER-DAIRE
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TEN THINGS WE HAVE LEARNED ABOUT FOP IN THE LAST 30(0) YEARS
DR RICHARD KEEN
Royal National Orthopaedic Hospital, United Kingdom

UNDERSTANDING THE NATURAL HISTORY AND OTHER SPECIAL CONSIDERATIONS FOR CLINICAL TRIALS IN FOP
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PATIENT-DRIVEN DATA IN RARE BONE DISEASES: A CONCRETE EXAMPLE FROM THE FOP REGISTRY
SAMMI KILE
IFOPA (International FOP Association), United States

PANEL DISCUSSION AND CONCLUSIONS
PROFESSOR VALERIE CORMIER-DAIRE
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Fresenius Kabi is a global healthcare company that specializes in lifesaving medicines and technologies for infusion, transfusion and clinical nutrition. Our products and services are used to help care for critically and chronically ill patients. Our product portfolio comprises a comprehensive range of I.V. generic drugs, infusion therapies and clinical nutrition products as well as the devices for administering these products.
In the field of nephrology, Fresenius Kabi offers specific products to better control the kidney function of patients with chronic kidney disease.

Gedeon Richter Plc
Gedeon Richter Plc., Budapest/Hungary, is a major pharmaceutical company in Central Eastern Europe, with an expanding direct presence in Western Europe, China and Latin America. Richter’s consolidated sales were approximately EUR 1.56 billion in 2019, reaching a market capitalisation of EUR 4.1 billion. Richter’s product portfolio covers many important therapeutic areas, including Women’s Healthcare and Central Nervous System. Richter is also active in biologic product development and committed to bringing biosimilar products to global markets.

ICCBH
International Conference on Children’s Bone Health (ICCBH)
3-6 July 2021, Dublin, Ireland | Abstract deadline: 15 February 2021
ICCBH is your opportunity to hear about and discuss the newest developments in our understanding of paediatric bone health and disease. We invite anyone with an interest in bone metabolism and bone mass in children, adolescents and young adults to attend. The biennial ICCBH conference is attended by over 600 delegates from across the globe, making it truly multinational and multidisciplinary – a unique networking opportunity.
In addition for 2021, ICCBH Bone School takes place in Dublin 30 June to 2 July – a 3-day educational course on paediatric bone health and rare bone diseases. Come and participate in a lively interactive meeting with the leaders in the field! www.iccbh.org

Inozyme Pharma, Inc.
Inozyme Pharma is a rare disease biopharmaceutical company developing novel therapeutics for the treatment of diseases of abnormal mineralization. Through our in-depth understanding of the biological pathways involved in mineralization, we are pursuing the development of therapeutics to address the underlying causes of these debilitating diseases. It is well established that two genes, ENPP1 and ABCC6, play key roles in a critical mineralization pathway and that defects in these genes lead to abnormal mineralization. We are initially focused on developing a novel therapy to treat the rare genetic diseases of ENPP1 and ABCC6 deficiencies.

International Federation of Musculoskeletal Research Society (IFMRS)
The IFMRS is an international, not-for-profit federation of musculoskeletal research societies whose purpose is to promote excellence in the field of musculoskeletal science, in order to improve the prevention and treatment of all musculoskeletal (MSK) conditions worldwide. They do this by collaborating with, and fostering collaboration between, local, regional and international organizations to share information and resources, raise public awareness, influence policy and provide education. They bring together major musculoskeletal research societies from across the world, with a combined membership of over 15,000, and working across the full spectrum of MSK conditions, from rare diseases to osteoporosis and osteoarthritis.
www.ifmrs.org

Ipsen
Ipsen is a leading global biopharmaceutical company focused on innovation and Specialty Care. It develops and commercializes innovative medicines in three key therapeutic areas - Oncology, Neuroscience and Rare Diseases. Active in the rare diseases field for many years, Ipsen brings scientific advancements to patients, invests significantly in R&D, leveraging global expertise and local presence. Ipsen is committed to making innovative new treatments available to people with rare diseases.
For more information on Ipsen, please visit www.ipsen.com.
To ask a medical information question, report an adverse event or a product complaint, please visit www.ipsenmedicalinformation.com

ALL-BE-000197/October 2020
Kyowa Kirin
Kyowa Kirin commits to innovative drug discovery driven by state-of-the-art technologies. The company focuses on creating new values in the four therapeutic areas: nephrology, oncology, immunology/allergy and neurology. Under the Kyowa Kirin brand, the employees from 36 group companies across North America, EMEA and Asia/Oceania unite to champion the interests of patients and their caregivers in discovering solutions wherever there are unmet medical needs.

Nestlé Nutrition a division of Nestlé Enterprise S.A
The Nestlé Nutrition Institute (NNI), as a non-for-profit association in Switzerland, shares leading science-based information and education with practicing health professionals in all parts of the world. NNI is committed to fostering the highest levels of discussion within the scientific community and building nutrition knowledge globally. All NNI exclusive resources are available at http://www.nestlenutrition-institute.org.

Scanco Medical AG
Scanco Medical AG (www.scanco.ch), established 1988, is a global provider of microCT, VivaCT and XtremeCT (HR-pQCT) systems as well as scan/analysis services. Systems are bundled with sophisticated, easy-to-use, analysis and visualization software as well as automatic specimen changers (specimen systems only). Scanco Medical is the only company which offers a fully integrated optional Finite Element Analysis Software package with its systems. Optional hardware include a mechanical testing stage and GPU reconstruction engine. Scanco Medical is also pleased to announce the availability of complete Windows® based systems beginning 2021. We wish all ECTS participants the best for the future.

STADA Arzneimittel AG
STADA Arzneimittel AG is headquartered in Bad Vilbel, Germany. The company focuses on a two-pillar strategy consisting of generics, including specialty pharmaceuticals and non-prescription consumer health products. Worldwide, STADA Arzneimittel AG sells its products in approximately 120 countries. In financial year 2019, STADA achieved adjusted Group sales of EUR 2,608.6 million and adjusted earnings before interest, taxes, depreciation and amortization (EBITDA) of EUR 625.5 million. As of December 31, 2019, STADA employed 11,100 people worldwide.

Stratec Medizintechnik
Stratec Medizintechnik is the world’s most successful producer of pQCT-based bone densitometry scanners. Results are presented in real density units (g/cm³). Additionally, geometrical properties of bone can be analysed which allow the estimation of mechanical properties. The combined analysis of muscle and bone allows differentiation of disuse osteopenia from true osteoporosis. The sister company Novotec Medical is manufacturer of Galileo vibration training devices for muscle stimulation and of Leonardo motion analysis systems (mechanography). The side alternating technology employs a natural movement similar to human gait. Improvement of muscle function, treatment of back pain and immobility are typical fields of application.
UCB Biopharma SRL

UCB, Brussels, Belgium (www.ucb.com) is a global biopharmaceutical company focused on the discovery and development of innovative medicines and solutions to transform the lives of people living with severe diseases of the immune system or of the central nervous system. With 7,500 people in approximately 40 countries, UCB is continuously working to advance science and embrace new knowledge. We are leveraging scientific advances and skills in areas such as genetics, biomarkers and human biology. Patients inspire us to bring them value through cutting-edge science, innovative drugs, and practical solutions – so that they and their carers can get on with their lives. Follow us on Twitter: @UCB_news.
Amgen-sponsored industry symposium at the 47th Annual Meeting of the European Calcified Tissue Society

OPTIMISING BONE HEALTH: RECOGNISING AND TREATING A WIDE PATIENT SPECTRUM

Thursday 22 October 2020
13.45–15.15

Co-chairs: Roland Chapurlat (France) and Richard Eastell (UK)

Agenda

Welcome and introduction
Roland Chapurlat (France) and Richard Eastell (UK)

What is the optimal treatment approach in patients with osteoporosis?
Richard Eastell (UK)

Bone sweet bone; how diabetes mellitus impair bone quality
Lorenz Hofbauer (Germany)

Clinical updates in osteogenesis imperfecta
Oliver Semler (Germany)
Corporate Industry Symposia

Thursday, 22 October 2020

13.45 – 15.15  Corporate Satellite Symposium
Amgen (Europe) GmbH
Optimising bone health: recognising and treating a wide patient spectrum
Chairs: Roland Chapurlat (France)
Richard Eastell (United Kingdom)

13.45  Welcome and introduction
Roland Chapurlat (France)
Richard Eastell (United Kingdom)

13.50  What is the optimal treatment approach in patients with osteoporosis?
Richard Eastell (United Kingdom)

14.15  Bone sweet bone; how diabetes mellitus impair bone quality
Lorenz Hofbauer (Germany)

14.40  Clinical updates in osteogenesis imperfecta
Oliver Semler (Germany)

15.05  Q&A and close
Richard Eastell (United Kingdom)
TERROSA® is for the treatment of osteoporosis in postmenopausal women and in men at increased risk of fracture, and for osteoporosis associated with sustained systemic glucocorticoid therapy in women and men at increased risk of fracture.

This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions.

1. NAME OF THE MEDICINAL PRODUCT.

Teriparatide (EPI-001). Teriparatide is a 191 amino acid polypeptide hormone identical to the 34-N-terminal amino acid sequence of endogenous human parathyroid hormone (PTH). This medicinal product is a recombinant human parathyroid hormone.

2. QUALITATIVE AND QUANTITATIVE COMPOSITION.

Each cartridge contains 144 μg of teriparatide in 2 mL of 0.1 M acetic acid. The raw material for teriparatide is E. coli, using recombinant DNA technology, is identical to the 34-N-terminal amino acid sequence of endogenous human parathyroid hormone.

3. PHARMACEUTICAL FORM.

The medicinal product is supplied as a solution in a cartridge for injection. The cartridge is integrated in the Terrosa Pen device. Each cartridge contains 144 μg of teriparatide in 2 mL of 0.1 M acetic acid.

4. POS学OLY and METHOD OF ADMINISTRATION.

Teriparatide should be administered subcutaneously by subcutaneous injection into the abdomen, thigh, arm, and intact and tender injection site muscles, including, among others: subcutaneous fat, breast, thigh, arm, and intact and tender injection site muscles. Use the Terrosa Pen. Teriparatide is supplied: Teriparatide is supplied: Teriparatide is supplied:

5. DURATION OF TREATMENT.

Studies in rats indicate an increased incidence of osteosarcoma with long-term administration of teriparatide (see section 5.2). The potential risk for humans is unknown. The potential risk for humans is unknown.

6.4. Special precautions for storage. Store in a refrigerator (2 °C – 8 °C). After insertion of the cartridge into the pen, the combined pen cartridge must be kept refrigerated at 2 °C – 8 °C. Do not freeze. Store in a refrigerator (2 °C – 8 °C). After insertion of the cartridge into the pen, the combined pen cartridge must be kept refrigerated at 2 °C – 8 °C. Do not freeze.

6.5. INCOMPATIBILITIES.

This medicinal product should not be mixed with or used in conjunction with other medicinal products except as stated in section 6.3. This medicinal product should not be mixed with or used in conjunction with other medicinal products except as stated in section 6.3. This medicinal product should not be mixed with or used in conjunction with other medicinal products except as stated in section 6.3.

8.1. Special warnings and precautions for use.

This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions.

8.2. Overdose experience based on post-marketing spontaneous reports. In post-marketing spontaneous reports, there have been cases of hyperparathyroidism and effects on ionized calcium. Symptoms, including, among others: hyperparathyroidism and effects on ionized calcium. Symptoms, including, among others: hyperparathyroidism and effects on ionized calcium. Symptoms, including, among others: hyperparathyroidism and effects on ionized calcium.

9. DATE OF THE FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION.

Friday, October 23rd from 19:00—19:30

Corporate Mini Symposium Gedeon Richter Plc

Bone anabolic treatment - the past, the present and the future - Prof. Peyman Hadjii

How to individualise treatment - an interactive case presentation - Prof. Peyman Hadjii

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8.1. Special warnings and precautions for use.

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Women and men at increased risk for fracture1

TERROSA® is for the treatment of osteoporosis in teriparatide are nausea, pain in limb, headache and dizziness. Tabulated list of adverse reactions. Of patients in the teriparatide trials, 82.8% of the teriparatide patient...
Building stronger bones: A new approach to fracture management in severe osteoporosis

Saturday 24 October 2020 | 13:45–15:15 CET

A UCB-sponsored satellite symposium at the 47th Annual Meeting of the European Calcified Tissue Society.

We invite you to join us for this virtual symposium to examine a new therapeutic approach to improving bone strength for postmenopausal women with severe osteoporosis.

This symposium is only open to healthcare professionals who are registered for the ECTS 2020 Congress.

This meeting is sponsored and organised by UCB and UCB medicines will be discussed at this meeting.
Mini Corporate Symposia

Friday, 23 October 2020

19.00 – 20.00 Mini Corporate Symposium Gedeon Richter
Bone anabolic treatment – the past, the present and the future
Chair: Peyman Hadji (Germany)

19.00 How to individualise treatment – an interactive case presentation
Peyman Hadji (Germany)

19.15 – 20.15 Mini Corporate Symposium Inozyme Pharma, Inc.
The Natural History of ENPP1 Deficiency: A Clinical Spectrum from GACI to ARHR2
Chair: Pedro Huertas (United States)

19.00 Welcome

19.10 The key role of Ppi in driving diseases of ectopic mineralization
Pedro Huertas (United States)

19.20 A natural history of ENPP1 deficiency
Frank Rutsch (Germany)

19.35 GACI & ARHR2: Lessons learnt from a clinical case
Zulf Mughal (United Kingdom)

19.50 Discussion
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Congress Secretariat
INTERPLAN
Congress, Meeting & Event Management AG
Office Hamburg
Kaiser-Wilhelm-Strasse 93, 20355 Hamburg, Germany
Phone: +49 40 325092-57 / Fax: +49 40 325092-46
Email: ects2020@interplan.de

Congress Organiser
European Calcified Tissue Society - ECTS
Rue Washington 40, 1050 Brussels, Belgium
Email: ects@ectsoc.org
Web: www.ectsoc.org
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