



22 - 24 JUNE, 2026

DAVOS, SWITZERLAND

2026

CARTILAGE & DISC



Research Institute Davos

June 22nd – 24th 2026 | Congress Centre | Davos Platz | Switzerland

Welcome

Dear colleagues,

Repair and regeneration of articular cartilage and intervertebral disc continue to pose significant clinical challenges, despite their well-characterized structure. These tissues are known for their limited intrinsic healing capacity; however, recent advances in both preclinical and clinical research are offering renewed hope. Innovations in targeting senescent cells, harnessing extracellular vesicles, mobilizing chondroprogenitors, designing advanced biomaterials, and understanding tissue crosstalk are paving the way for more precise and effective management of joint and spine disorders.

This year's conference will spotlight these breakthroughs, showcasing how emerging strategies are bringing us closer than ever to transformative clinical applications. Topics will include cell-mediated repair, drug and gene delivery systems, and novel therapeutic approaches—each contributing to a deeper understanding of musculoskeletal regeneration and the critical need for stronger collaboration between scientists and clinicians.

The ARI Orthopaedics Conferences (formerly eCM Conferences) have long served as a dynamic forum where researchers and practitioners converge to share challenges, insights, and solutions. Translating scientific discovery into clinical practice depends on this active exchange between those developing proof-of-concept and those delivering patient care.

To foster meaningful dialogue, the conference maintains a limited number of participants, ensuring ample opportunity for interaction among clinicians, biologists, engineers, and materials scientists. Our single-session format encourages in-depth, multidisciplinary discussion, while one afternoon is reserved for excursions into the mountains or informal networking—an opportunity to connect in the inspiring surroundings of Davos.

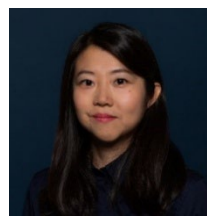
We are delighted to host the ARI Orthopaedics Conference, Cartilage & Disc on 22nd - 24th June 2026 and look forward to welcoming you to Davos for a stimulating and collaborative experience.

Local Conference Organizers



Prof. Sibylle Grad
Focus Area Leader
Disc and Cartilage Biology
AO Research Institute Davos

Conference Chair



Assoc. Prof. Zhen Li
Principal Scientist
Disc and Cartilage Biology
AO Research Institute Davos

Conference Chair



Prof. Martin Stoddart
Vice Director,
AO Research Institute Davos
Program Leader,
Regenerative Orthopaedics

Conference Chair

General Congress program related information

Monday, June 22nd

Registration and pick up of conference bags at the Congress Center (Promenade entrance) from 07:30h.

Dinner tickets are available at the Conference desk for pick up or purchase until Monday, June 22, 2026, at 12:00. Further details about the dinner further down.

Presentation Upload

You are welcome to email your presentation to ariortho26@aofoundation.org prior to the congress for upload. There will also be a USB upload option available at IT in the Aspen lecture room on-site. For *any changes* after uploading your presentation, kindly visit IT at least 45 minutes prior to your talk slot.

Time allocation

All **invited talks** are a maximum 20 minutes (20-30 slides) to allow 10 minutes discussion per talk.

All **submitted talks** are 10 minutes (10-15 slides) to allow 5 minutes discussion per talk.

Chairpersons are asked to ensure these timelines are followed.

Program update



[ARI Orthopaedics 2026 Cartilage & Disc -Full Program](#)

Conference support



Carla Escher
Senior Assistant
Administrative Services
AO Research Institute Davos



Shannon Smit
Senior Assistant
Social Media and Outreach
AO Research Institute Davos

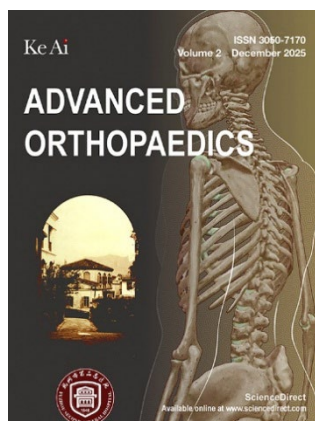
Please contact Ms. Carla Escher for any information on ARI Orthopaedics congresses.
Email: ariortho@aofoundation.org

ARI Orthopaedics Congress Sponsors



Testing • Research • Consulting

www.rms-foundation.ch



Swiss National
Science Foundation



ARI Orthopaedics Endorsements



Future Meetings

2027

ARI Orthopaedics, Bone & fracture repair, Davos June 14th – 16th

2028

ARI Orthopaedics, Orthopaedic related infection, Davos June 26th – 28th

Scientific Program ARI Orthopaedics 2026

Monday, June 22nd

Welcome

08:45 – 09:00 **Sibylle Grad & Zhen Li (CH)**
Welcome to ARI Orthopaedics & Davos

Session 1 **Berton Rahn Award Lecture & Brian Johnstone Lifetime Achievement Presentation**

Chairs: Geoff Richards & Martin Stoddart

09:00 – 09:30 **Brian Johnstone (US)**
Lifetime Achievement Presentation

09:30 – 10:00 **Gerjo van Osch (NL)**
Revealing the secrets of the zone of calcified cartilage

10:00 – 10:45 Coffee break

Session 2 **Clinical Developments**

Chairs: Sonja Häckel & Ali Mobasheri

10:45 – 11:15 **Xudong Joshua Li (US)**
A novel platform for investigating neuroimmune interactions in degenerative disc disease

11:15 – 11:45 **Martin Englund (SE)**
Osteoarthritis – an evolutionary mismatch disease?

11:45 – 12:00 Temporal proteomic profiling of PTOA identifies the optimal therapeutic window for anti-inflammatory cell therapy
R Lev-Gur, N More, N Mahmoudi, J Sheyn, D Roell, W Tawackoli, D Sheyn

12:00 – 12:15 A personalized multi-scale modeling workflow to estimate OA-related cartilage biomarkers
A Abedi, A Elahi, Y Zhang, A Esrafilian, M Willems, BA Killen, I Jonkers

12:15 – 15:00 Lunch break (Lunch not provided)

Session 3 Tissue Engineering and Regenerative Medicine

Chairs: Gerjo van Osch & Katrin Wendrich

- 15:00 – 15:30 **Catherine Le Visage (FR)**
Biofabrication of the intervertebral disc: progress and remaining challenges
- 15:30 – 16:00 **Julian Jones (UK)**
3D printed “Bouncy Bioglass” can regenerate articular cartilage focal defects
- 16:00 – 16:15 A nasal chondrocyte-based inflammation resistant therapy for osteoarthritis
A Damle, D Mock, B Dasen, K Sovdagarova, L Sauteur, SR Roig Merino, T Welting, A Garcia-Garcia, P Ismailidis, F Imhoff, I Martin, A Mainardi, A Barbero
- 16:15 – 16:30 Biomimetic composite hydrogel using silk fibres, hyaluronic Acid, and Collagen type II for nucleus pulposus regeneration
A Kumar, P Torabi Rahvar, A Bouduban, M Wöltje, B Gantenbein
- 16:30 – 17:00 Coffee break**

Session 4 Preclinical and Clinical Research

Chairs: Jaqueline Lourdes Rios & Jun Dong

- 17:00 – 17:30 **Chris Little (AU)**
Joint injury: New insights from animal models on injury risk and long-term consequences
- 17:30 – 18:00 **Giuseppe Filardo (CH)**
Cartilage regeneration and joint preservation: A challenging translational journey to the clinical practice
- 18:00 – 18:15 The immediate postoperative joint milieu is predominantly alkaline under normal and staphylococcal septic conditions
TP Schaer, OM Swiber, RM Butler, A Winslow, M Seraydarian, C Durst, CM Snyder, AF Chen, NJ Hickok
- 18:15 – 18:30 Chronic stress-induced spatiotemporal alterations in corticosterone converting enzymes and adrenergic receptors in experimental osteoarthritis
G Rösch, M Pfeiffer, PL Tsai, M Gold, F Zaucke, D Slattery, Z Jenei-Lanzl
- 18:30 – 20:00 Poster session (drinks & snacks)**

Tuesday, June 23rd

Session 5

Cells in Orthopaedics

Chairs: Benjamin Gantenbein & Fengjin Guo

- 08:30 – 09:00 **Rui Yue (CN)**
Identification of novel skeletal stem/progenitor cells in the perichondrium
- 09:00 – 09:30 **Makarand Risbud (US)**
Central role of pyrophosphate metabolism in spine health
- 09:30 – 09:45 Extracellular vesicles from spontaneously calcifying chondrocytes stimulate chondrocyte and matrix calcification
A Schwab, C Schneider, S Gylstorf, C Göttisch, AHalm-Pozniak, CH Lohmann, J Bertrand
- 09:45 – 10:00 Unlocking CD44+ intervertebral disc cells in homeostasis and degeneration for therapeutic targets in discogenic pain
S Pilão, AM Martins, J Caldeira, L Teixeira, RM Gonçalves
- 10:00 – 10:15 Mechanically preconditioned synovial mesenchymal stem cells organoid exosomes for osteoarthritis repair
C Li, F Yuan, T Zhang, J Zhou, H Lyu
- 10:15 – 10:30 Mesenchymal stromal cell spheroid-loaded microscaffolds for intervertebral disc repair
M Muerner, RV Balasubramanian, J Fernández-Pérez, A Ovsianikov, S Grad
- 10:30 – 11:00 **Coffee break**

Session 6

Mechanobiology and Modelling

Chairs: Mario Rothbauer & Maja Schlittler

- 11:00 – 11:30 **Martin Knight (UK)**
Organ-on-a-chip models of inflammatory joint disease
- 11:30 – 12:00 **Jérôme Noailly (ES)**
From people to molecules: In Silico insights for precision health in spine and synovial joints
- 12:00 – 12:15 Pericellular matrix restoration enhances resistance of chondrocytes to inflammatory and mechanical stress
H Meng, MJ Stoddart, S Grad, Z Li
- 12:15 – 12:30 Exploring TRPV4 mechanosensitivity to substrate stiffness and mechanical loading in annulus fibrosus
J Hasler, K Wuertz-Kozak

- 12:30 – 12:45 Human disc-on-a-chip: modelling human intervertebral disc degeneration via microfluidic and hydrogel-based system
I Zulkiflee, Z Razak, H Revill, A Pandit, ILM Isa
- 12:45 – 13:00 The “village-in-a-dish” approach as an innovative cellular model for investigating variability in response to loading in chondrogenic cells
A Bertocci, S Costa, A Flier, L You, P Chiafele, M Ghazvini, H Ray-Jones, G van Osch, MP Chien, J de Pinho Gonçalves, J van Meurs, R Narcisi
- 13:00 – 13:15 **Group photo**
- 13:15 – 13:30 **Pick up lunch box if pre-ordered on site**
- 13:30 **Leave for Dischma walk or Lake Walk (see details page 11)**
- 18:00 **Dinner at Restaurant Walserhuus, Sertig**
- Meeting point:** Entrance Congress Center, Promenade at 17:50
(see details page 12)
Remember to bring your dinner ticket.

Wednesday, June 24th

Session 7

Tissue Cross-talk

Chairs: Brian Johnstone & Fatemeh Safari

- 08:30 – 09:00 **Rachel E Miller (US)**
Imaging neuroplasticity in knee osteoarthritis
- 09:00 – 09:30 **Jiao Jiao Li (AU)**
The potential of MSCs and MSC-EVs as new therapeutics for osteoarthritis
- 09:30 – 09:45 A neurovascular disc system to study the role of endothelial cells in nociceptive axonal growth
J Ma, J Müller, T Serra, S Grad
- 09:45 – 10:00 Intradiscal propionic acid levels in chronic low back pain patients (CLBP) with Modic type 1 changes (MC1) are associated with systemic immune cell activation
J Devan, J Zhou, P Wu, N Bonnheim, C O'Neill, JC Lotz, TM Link, AJ Fields, S Dudli
- 10:00 – 10:30 **Coffee break**

Session 8

ORS Spine Section Session

Chairs: Mauro Alini & Marcia Mürner

- 10:30 – 11:00 **Marianna Tryfonidou (NL)**
Notochordal cells lead the way to regeneration
- 11:00 – 11:30 **Nam Vo (US)**
Filth or fuel? Lactate's role in disc metabolism and epigenetic regulation
- 11:30 – 11:45 High-resolution spatial transcriptomic and proteomic mapping of the developing human intervertebral disc
CT Dube, EM Oldfield, SM Baker, M Buckley, R Jennings, JA Hoyland, SM Richardson
- 11:45 – 12:00 Direct In Vivo capture of the nucleus pulposus secretome
A Upadhyay, G Belen, CL Dahia
- 12:00 – 13:00 **Lunch provided (on order)**

Session 9 **EU Consortiums – SinPain; Ostaskills and NetwOArk**

Chairs: Andrea Barbero & Laura Mecchi

- 13:00 – 13:30 **Zhen Li (CH)**
Advancing osteoarthritis therapy: In Vitro and Ex Vivo modeling in bioreactor platforms
- 13:30 – 14:00 **Tim Welting (NL)**
Exploring the bioactivity of synovial fluid in osteoarthritis as a vector for intra-joint biomolecular cross-talk
- 14:00 – 14:15 Dynamic compression strain drives chondrogenic transcriptional fate through actin cytoskeleton dynamics, TGF- β /SMAD signalling and YAP1 translocation
MC Cordeiro, AG Guex, JK Wychowanec, A Barbero, MJ Stoddart
- 14:15 – 14:30 Objective imaging biomarkers for knee OA: a data-driven view of cartilage degeneration
FK Ciliberti, I Maruotto, HR Jónsson, P Gargiulo

Session 10 **Drug and Gene delivery**

Chairs: Christopher Evans & Marta Santolini

- 14:30 – 15:00 **Ambika G Bajpayee (US)**
Charge-driven gene delivery to cartilage
- 15:00 – 15:15 Protective effects of IL-1Ra gene therapy on intervertebral disc degeneration: In Vitro and In Vivo findings in beagle dogs
SA Kamali, C Voskamp, LT Laagland, A Eversdijk, M Teunissen, S Plomp, A Tellegen, G Sponder, BP Meij, K Guse, S Plutizki, MA Tryfonidou
- 15:15 – 15:30 Ex Vivo exploration of PCRX-201 in human OA joint tissues
G McDermott, D Swift, M Kim, D Jackson, JM Wilkinson, CL Le Maitre

Awards and conference closing

- 15:30 – 16:00 **Sibylle Grad & Zhen Li (CH)**
Student awards and conference closing

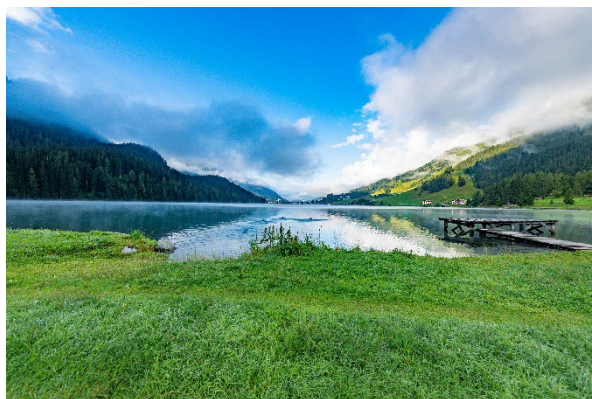
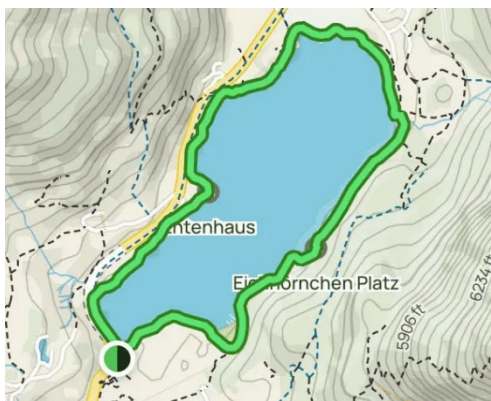
Social activities, June 23rd

Free afternoon

Directly after the end of session 6 we will be going towards the Davos Lake or the Dischma Valley.

If you want to join one of the walks, please inform the front desk. Order your lunchbox (CHF 20) by Monday, 12:00.

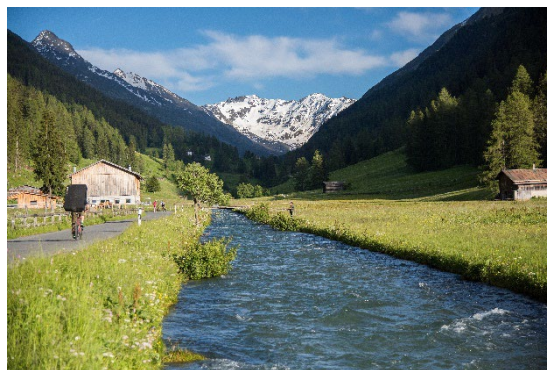
Davos Lake walk



Distance: 5 km
Time: 1.5 hours
Bar: Bachi's Strandbad

Meeting starting point: entrance of the Congress Center, after group photo
Take Bus #301, #303 or #304 to Flüelakreuzung

Dischma Valley hike



Distance: 7 km
Time: 2 hours, 200m altitude difference
Restaurant: Teufi

Meeting starting point: entrance of the Congress Center after group photo
Walk from there to Teufi in Dischma

Bus #313
Davos Dischma Teufi => Davos Bahnhof Dorf 15:20 or every hour (CHF5.40 bus fee)

Davos Bahnhof Dorf Bus => Kongresszentrum #301, #303 or #304

Congress Dinner, June 23rd, 2026

**Meeting point and time:**

Congress Center, Promenade entrance – 17:50

A conference dinner ticket will be required to attend the dinner (CHF120.00).

Tickets will be available at the conference reception desk until Monday June 22nd, 2026 at 12:00.

Dress code: Casual. Remember to bring a jacket.

Posters

1. Longitudinal in vitro assessment of mechanical and compositional changes in cartilage under mechanical trauma inflammation and cyclic loading
RL Abeysekara, A Saastamoinen, K Honkää, J Lourdes Rios, P Tanska, MAJ Finnilä
2. Identification of repurposing drugs that protect chondrocytes from bcp crystals in osteoarthritis
JEJ Beaumont, MMJ Caron, A Cremers, M de Vries, GGH van den Akker, TJM Welting
3. Decellularized annulus fibrosus scaffolds for in vitro disease
AL Castro, M Macedo, JB Costa, RM Gongalves
4. Mechanical environment drives acetylation-mediated epigenetic remodeling in C28/I2 in chondrocytes.
R Castro-Vifluelas, DM Minton, I Jonkers
5. Biomimetic and injectable aminated collagen-hyaluronic acid-glycosaminoglycan (aCol-HA-GAG) biomaterial scaffold for cell-based intervertebral disc regeneration.
M Chaaban, T Goel, X Yang, D Cher, J Guicheux, M Fusellier, BP Chan, C Le Visage
6. Using mesendoderm progenitor cells seeded in hydrogel biomaterial as a strategy to regenerate the intervertebral disc.
C Cicione, RJ Williams, J Snuggs, J Warin, C Sammon, B Gatenbein, D Noel, JM LeMaitre, A Camus, MA Tryfonidou, G Vadala, C Le Maitre
7. Why does animal health matter - Correlation of postoperative welfare with clinical parameters in a rabbit model of knee osteoarthritis
RZ Coeti, M Carretero-Hernandez, Y Zhang, F Lir, JK Venkatesan, A Acheli, G Schmitt, M Cucchiarinir, H Madry
8. SHH and TBXT-mRNA-loaded lipid nanoparticles as a promising regenerative therapy for degenerated intervertebral disc
D Corraini, A Varela-Moreira, M Buiter, A Eversdijk, C Voskamp, Q Yang, Z Leiz, RM Schiffelers, MA Tryfonidou
9. Degenerate intervertebral disc environment impairs the regenerative potential of notochordal cell-derived extracellular vesicles
D Corraini, G Voskamp, A Eversdijk, FM Riemers, HR Vos, P Vader, GGH van den Akker, TJM Welting, K Ito, MHM Wauben, MA Tryfonidou
10. Extracellular matrix depletion underlies mechanical dysfunction in the aging intervertebral disc of mouse.
CL Dahia, AP Hallmark, S Bogdan, AM Ali

11. In search of a disease-modifying osteoarthritis drug using aptamer technology
LJM Deneer, MR Schlüter, K Warmink, HH Weinans, JL Rios
12. HLA-A*26:01 is associated with vertebral endplate bone marrow lesions (Modic changes): evidence for an immunogenetic component in spinal degeneration
J Devan, CJ Smith, J Määttä, J Zhou, P Leary, PH Wu, T Link, O Distler, J Karppinen, FMK Williams, A Fields, S Dudli
13. Modeling neutrophil responses to annulus fibrosus secretomes under physiological and inflammatory conditions
J Dong, E Bektas, E Bovay, L Buonarrivo, M Mürner, W Chen, J Ma, E Della Bella, Z Li, S Grad, M D'Ester
14. Molecular patterns in early osteoarthritis: The role of cellular senescence
E Duman, G Pattappa, P Pann, S Reppenhagen, M Rudert, P Angele, D Docheva
15. Enhancing chondrocyte regulatory network accuracy for multiscale coupling via integrated signalling pathways
A Pascuet-Fontanet, J Noailly
16. A dynamic whole knee joint culture that preserves cartilage viability
S Funk, M Tryfonidou, L Utomo
17. Acetylcysteine regulates the endoplasmic reticulum stress response in CEP-like chondrocytes exposed to proinflammatory cytokines.
L Gonzalez-Blanco, Y Farrag, M Farrag, J Pino, B Gantenbein, O Gualillo
18. Minimally invasive biologic fusion: synergistic ep4 and bmp-2/151p signaling promotes osteogenic differentiation of human annulus fibrosus cells (discfuse): dose optimization of kmn-159
L Gonzalez-Blanco, S Zwingenberger, X Tian, C E Albers, B Gantenbein, S Häckel
19. Promoting intervertebral disc fusion through combined BMP2, L51P, and EP4 agonism: In Vitro evidence from human annulus fibrosus cells (discfuse)
S Häckel, S Chen, L Gonzalez-Blanco, S Zwingenberger, X Tian, CE Albers, Spine Science Commission of the German Spine Society (DWG), B Gantenbein.
20. Sirtuin-6 therapy: A promising concept with limited efficacy in intervertebral disc degeneration in beagle dogs
SA Kamali, C Voskamp, A Eversdijk, LT Laagland, M Teunissen, S Plomp, A Tellegen, GSponder, BP Meij, K Guse, S Plutizki, MA Tryfonidou
21. Cartilage-on-chip reveals a translational response to mechanical cues
JJ Kreutzkamp, I van Galen, E Lauwers, D Surtel, M de Vries, A Cremers, C Marjolein, C Paggi, T Welting, G van den Akker
22. Biomimetic composite hydrogel using silk fibres, hyaluronic acid, and collagen type II for nucleus pulposus regeneration
A Kumar, Parisa T Rahvar, A Bouduban, M Wöltje, B Gantenbein

23. Advanced ex vivo model recapitulating the complexity of disc degeneration for pre-clinical testing of a next-generation gene therapy.
LT Laagland, SA Kamali, C Voskamp, E Salzer, G Sponder, K Guse, S Plutizki, K Ito, MA Tryfonidou
24. Human fibroblast-like synoviocytes modulate the inflammatory response of human articular chondrocytes across multiple patients
S Liu, D Terrazas, S Verbruggen, T Hopkins, M Knight
25. Sialylation is a central mediator of osmolarity and pH-dependent ferroptosis and ER stress in nucleus pulposus cells
J Lyu, A Scheper, K Joyce, K Das, A Pandit
26. Single-cell resolution atlas of glycosylation heterogeneity in intervertebral disc degeneration
J Lyu, P Rodriguez-Atonso, H Revill, A Pandit
27. Influence of fibre reinforcement on annulus fibrosus mechanics in finite element models
M Machado, R Gill, E Pegg, Gheduzzi
28. The actin-binding and -bundling protein plastin-3 (PLS3) and cartilage mechanotransduction
D Maehlich, F Busse, NM Kronenberg, M Vovchenko, N Vaes, H van Oosterwyck, MC Gather, A Niehoff
29. Deploying iPSC-derived M2 macrophages to mitigate PTOA in 2D, 3D and In Vivo models
N Mahmoudi, L Zila, J Sheyn, A Prasad, J Wechsler, S Mohyeddinipour, D Roell, M Bastani, M Orr, A Spitzer, S Rajaei, M Chavez, N More, R Lev Gur, W Tawackoli, D Sheyn
30. Evaluation of clinically relevant lipid nanoparticles for mRNA delivery in osteoarthritic joint models
JAJ Martens, A Varela Moreira, A Eversdijk, R Schiffelers, MA Tryfonidou, L Utomo
31. Clinically meaningful machine learning: The role of feature selection in knee osteoarthritis
I Maruotto, I Jónsson, P Gargiulo
32. Bioactive and load-bearing calcium phosphates for developing biomimetic spine fusion implants
BF Massel, R Truckenmüller, P Habibović, ZN Tahmasebi Birgani
33. A high-throughput cartilage-on-chip model reveals mechanosensitive chondrogenic responses in human MSCs
L Mecchi, MMJ Caron, TJM Welting, MJ Stoddart

34. Antibiotic-loaded hyaluronic acid-tyramine hydrogel to prevent bacteria-mediated disc degeneration and Modic type 1 changes of herniated discs
D Menghini, E Kuhn, M Muerner, O Distler, M Farshad, S Grad, M D'Este, TF Moriarty, JG. Snedeker, S Dudli
35. HTRA1-driven disc matrix fragmentation propagates Modic-like pathology across the disc-endplate-marrow axis
T Menigs, J Devan, A Nüesch, P Hatt, I Heggli, B Roschitzki, A Laimbacher, N Herger, M Farshad, D Brunner, O Distler, S Dudli
36. Human-relevant chondroprogenitor-based models of cartilage injury to study regulated cell death after surgical debridement
D Mock, M De Luise, A Barbero
37. CRISPR-engineered MSC-derived extracellular vesicles: From TSG-6 overexpression to subpopulation characterization
L Moralesl, I Martinez-Zalbideal, L Brown, V Puvanesarajah, K Wuertz-Kozak
38. The protective effect of microgel cell delivery for intervertebral disc regeneration therapy
N More, T Lee, A Prasad, S Mohyeddinipour, J Sheyn, G Kaneda, M Chavez, D Roell, L Zila, D Khorsandi, M Grol, M Dokmeci, D Seliktar, W Tawackol, D Sheyn
39. The role and mechanism of matrix sulfation in regulating chondrocyte cell cycle abnormalities in osteoarthritis
B Nj, C Zheng, L Yang
40. Bacteria-induced epigenetic modification in intervertebral disc cells
A Nüesch, E Ezen, T Mengis, P Bitterli, O Distler, C Seiler, S Dudli
41. I Like to move it: Robotic microsystem approaches for musculoskeletal disease modelling
M Rothbauer
42. Modelling osteoclast-chondrocyte interactions in a 3d human organoid system
F Safari, S Grad, MJ Stoddart, Z Li
43. Synergistic effects of mechanical loading and inflammation on chondrocyte gene expression in a cartilage-on-chip model
Z Sarmadian, J Henriques, V Peitso, CA Paggi, E Lauwers, M Risteli, A Mobasher
44. Intra-articular α -MSH analogs attenuate cartilage degradation and systemic inflammation in a murine osteoarthritis model
N Schäfer, P Pann, M Rudolph, N Pere, H Clausen-Schaumann, M Böhm, S Grässell

45. Application of an electric current in the developing chicken embryo induces spinal deformity
TP Schaer, JV Jordan, G Orlando, A Ketscheks, G Gallo, J Anari, BD Snyder, PJ Cahill
46. Impact of digestion time and tissue size on the isolation of TIE2+ nucleus pulposus progenitor cells
L Schlagenhof, A Stirnimann, F Ille, B Gantenbein
47. A comparison of bovine adipose-derived mesenchymal stromal cells with nucleus pulposus progenitor cells: Exploring extracellular vesicle therapy for intervertebral disc regeneration
L Schlagenhof, C Raffaele, C Zivko, P Luciani, A Hashemi Gheinani, B Gantenbein
48. Mechanical loading of 3D-printed thermoplastic polyurethane scaffolds promotes chondrogenic differentiation of human mesenchymal stromal cells without exogenous TGF- β 1 while limiting hypertrophy
M Schlittler, L Mecchi, MJ Stoddart
49. Bridging biomechanical and biochemical profiles in whole-organ intervertebral disc degeneration models
D Schnyder, M Muerner, N Fischlin, C Honz, M Santolini, P Schwarzenberg, S Grad
50. Extracellular vesicles from spontaneously calcifying chondrocytes stimulate chondrocyte and matrix calcification
A Schwab, C Schneider, S Gylstorf, C Gottsch, A Halm-Pozniak, CH Lohmann, J Bertrand
51. Deoxycholic acid links gut microbiota to a novel pro-inflammatory adipocyte phenotype in modic type I changes
F Schulze, J Devan, T Mengis, LP Hatt, M Farshad, O Distler, S Dudli
52. Notochordal & mesendoderm progenitor cells as potential cell sources for disc degeneration-associated back pain
JW Snuggs, S Basatvat, J van Maanen, M Templin, M Tryfonidou
53. Targeting cellular senescence to combat osteoarthritis and intervertebral disc degeneration
J Snuggs, D Swift, H Wilson, E Kiss-Toth, JM Wilkinson, C Le Maitre
54. TGF- β -driven Interleukin-6 production by human fibroblast-like synoviocytes is OA patient-specific and is regulated by multiple active sites within IL-6 promoter
JSJ Steijns, GGH van den Akker, RHML Stassen, LCW Peeters, MMJ Caron, TJM Welting
55. Impact of TGF-beta and physioxenic culture conditions on periosteal chondrogenesis
M Stewart, M Schlittler, S Flück, M Stoddart

56. Optimizing cartilage tissue engineering using simulated microgravity and pulsed electromagnetic fields
A Stirnimann, R Bischof, G Cerretti, L Beeler, M Egli, F Ille
57. Targeting VGLL4 maintains extracellular matrix homeostasis and mitigates osteoarthritis
J Suo, Duo Wang, J Wang
58. Single-cell analysis identifies lining fibroblasts and macrophages as key contributors to persistent synovial inflammation after cartilage injury in experimental canine osteoarthritis
M Teunissen, FM Riemers, BAC Housmans, L Winkel, SGM Plomp, SCM Mastbergen, BP Meij, TJM Welting, MA Tryfonidou
59. Biomimetic nucleus pulposus-on-chip for intervertebral disc degeneration research
P Torabi Rahvar, L Gonzalez-Blanco, B Gantenbein
60. Sirna-lipid nanoparticles enable extensive gene silencing in primary human macrophages and osteoarthritic patient derived chondrocytes
D Pereira de Vasconcelos, M Couto, E Bonvin, B Ribeiro, B Osorio de Valdeiros, A Nobrega, A Moncada-Pazos, G Guerin, F Poulhes, S Slaoui, O Zelphati, M Ribeiro da Silva, D Dupin, M Lamghari
61. The effect of osteoarthritis on the peripheral nerves of the dorsal root ganglions in dogs
P Virankabuttra, S Plomp, MA Tryfonidou, M Teunissen
62. Interplay between canonical WNT signaling and A5B1 integrins modulates mechanoresponse in human articular cartilage
N Viudes-Sarrion, R Castro-Vinuelas, N Vaes, E Blain, S Monteagudo, R Lories, I Jonkers
63. Native extracellular vesicles derived from notochordal cell matrix contribute to a healthy nucleus pulposus cell state
C Voskamp, N Rijnveld, D Corraini, MHM Wauben, MA Tryfonidou
64. Notochordal cell-derived extracellular vesicles: a functional protein corona affecting regenerative signaling pathways
C Voskamp, JC van Maanen, FM Riemers, HR Vos, A Eversdijk, M Kleinjan, JC van Herwijnen, FC Bach, TJM Welting, CL le Maitre, GGH van den Akker, MHM Wauben, MA Tryfonidou
65. Large-scale proteomic / metabolomic analyses reveal new pathophysiological insights between sleep behaviours and osteoarthritis risk
J Wang, Q Tong, R Shao, H Yuan
66. Oxysterol undersulfation promotes osteoarthritis by fueling chondrocyte lipid accumulation
H Wang, B Ni, L Yang, C Zheng

67. Immediate-early dynamics of lineage-commitment, mechanotransductive and circadian gene expression in human MSCs in response to a single mechanical loading event
KS Wendrich, L Mecchi, QJ Meng, MJ Stoddart
68. Differences between histochemical glycosaminoglycan staining methods for cartilage tissues
RV Wolff, N Kops, E Salzer, R Narcisi, MSB Rathnayake, KS Stok, GJVM van Osch
69. Inflammatory cytokines alter the response to physiological loading in osteochondral explants
RV Wolff, E Salzer, N Kops, R Narcisi, GJVM van Osch
70. Decellularized extracellular matrix particle-based biomimetic hydrogel preserves cartilage matrix components and attenuates inflammation in a human osteochondral explant osteoarthritis model
J Xu, M D'Este, M Alini, S Grad, J Geurts, Z Li
71. Functional complementation of neonatal and adult intervertebral disc ECM: An A&NM-dECM scaffold for enhanced intervertebral disc degeneration repair
F Yuan, C Li, T Zhang, J Zhou, J Hu, H Lyu
72. Redox responses to mechanical loading are heterogeneous in human cartilage
C Yu, CR Henak
73. Combining experimental data and mathematical modeling to interpret glucose transport and metabolic gradients in a joint tissue co-culture model
J Zwicer, F Safari, J Stojkowska, P Petrovic, S Grad, MJ Stoddart, Z Li, B Obradovic