



Swiss Society for Biomaterials + Regenerative Medicine
Société Suisse des Biomatériaux + Médecine Régénérative
Schweizerische Gesellschaft für Biomaterialien + Regenerative Medizin
Società Svizzera di Biomateriali + Medicina Rigenerativa

26th Annual Meeting



Biomaterials: from innovation to translation

SSB+RM 2022

June 7-9



University of
Zurich ^{UZH}

ETH

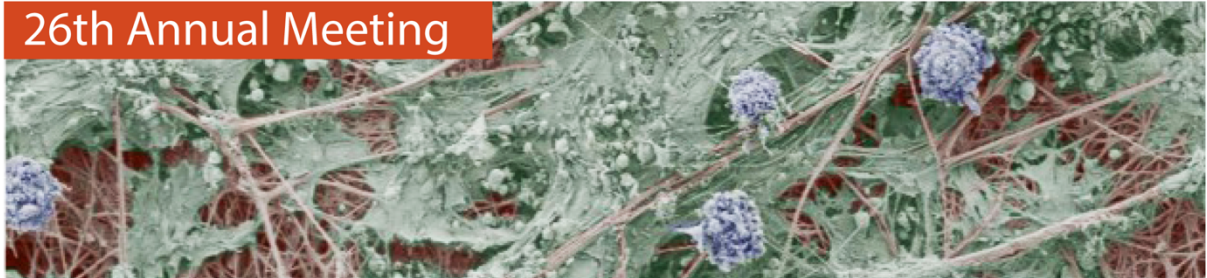
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Spital Zürich



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Welcome to the 26th Annual Meeting of the Swiss Society of Biomaterials + Regenerative Medicine (SSB+RM) hosted by the University of Zürich and ETH Zürich! We are very happy to have you here in Zürich and especially pleased to be able to meet again in person. The aim of this meeting is to highlight recent innovations in biomaterials design and how these are leading to translation in clinical practice and industry. We have a wonderful set of invited and contributed talks and poster contributions and we look forward to a vibrant meeting connecting many biomaterials scientists here in Switzerland and abroad.

Enjoy the meeting!

- Martin Ehrbar, Queralt Vallmajó Martín, Mark Tibbitt

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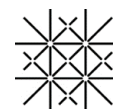


Empa

Materials Science and Technology



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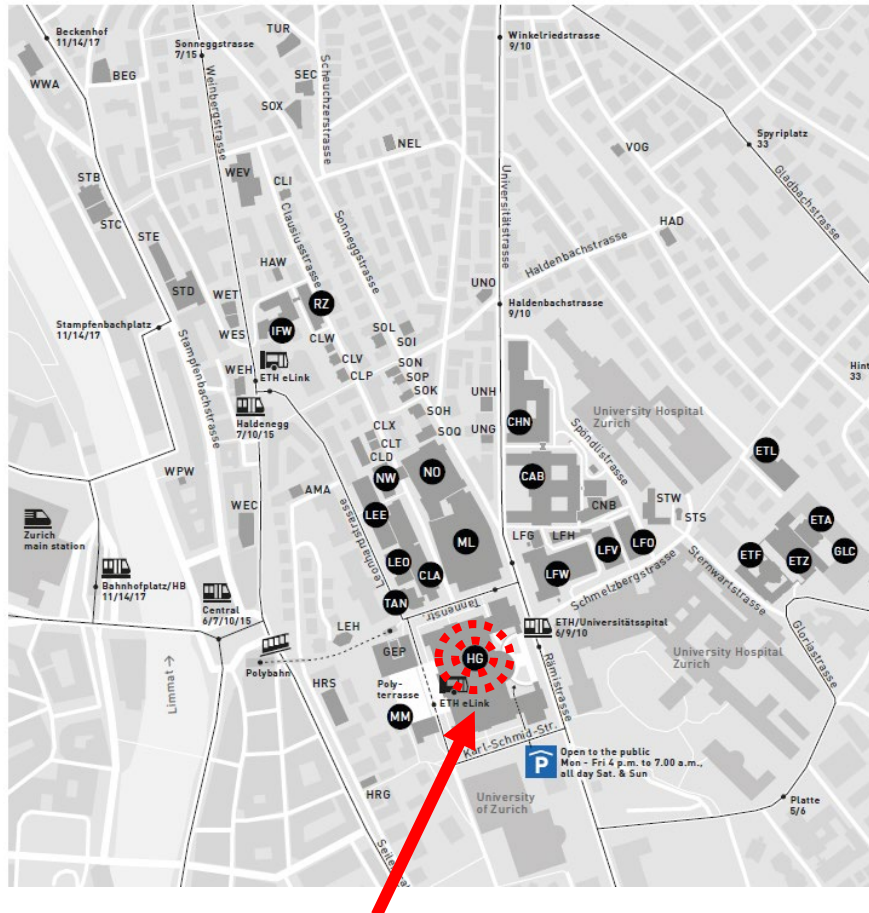


Universität
Basel



Geistlich
Biomaterials

Area plan of the Zentrum Campus



Travelling from Zurich Central Station

From the “Bahnhofquai/HB” stop

Tram no. 6 (towards the Zoo) as far as the “ETH/Universitätsspital” stop. Journey time: approx. 6 minutes

From the “Bahnhofstrasse/HB” stop

Tram no. 10 (towards the Airport or Oerlikon station) as far as the “ETH/Universitätsspital” stop

From the “Bahnhofplatz/HB” stop

Tram Nr. 3 (towards Klusplatz) as far as the “Central” stop (1 stop), from “Central” by Polybahn (departs every three minutes) to the Polyterrasse. Journey time: approx. 8 minutes

You will require a ticket that is valid for zone 110 (city of Zurich).

Link: <https://ethz.ch/en/campus/access/zentrum.html>

W-LAN ACCESS FOR GUESTS AT ETH ZURICH – DAY ACCESS

Scientists of a University get access via eduroam-5 with their home university credentials

Guest accounts

Self-registered day guests

Self-registered day guests have access to the ETH Wi-Fi network for one day. The self-service system is set up without authorisation: verification is carried out via an SMS code. Self-registered day guests do not receive any IT services except Wi-Fi network access in the guest network.

You can access the registration form by connecting to the Wi-Fi public/public5 via the enter page <https://enter-guest-net.ethz.ch> →

Mandatory information:

Contact details (telephone number for sending SMS messages or for verification purposes).

The ETH user name is assigned automatically.

SSB+RM ANNUAL MEETING 2022: MEETING VENUE AT ETH ZURICH

Presentations

Tuesday & Wednesday

HG F 30

Thursday

HG E 7

Poster sessions & Catering

HG G Gallery

HG G Gallery

G Floor



F / E Floor



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SSB+RM 2022 Program

June 7th

10.00 – 12.00 Young Scientists event

12.00 – 13.00 Registration, poster hanging & lunch

13.15 – 13.30 Welcome & opening remarks

13.30 – 15.10 Advanced strategies for the engineering and evaluation of tissues I (Chair: Queralt Vallmajó Martín, Co-chair: Riccardo Francescato)

13.30 – 14.10 Keynote: Bart Deplancke (EPF Lausanne) *New deterministic technologies for developmental and real-time single cell transcriptomics*

14.10 – 14.25 Charles Bataclan (EPF Lausanne) *Deciphering the heterogeneity of human bone marrow multipotent stromal cells*

14.25 – 14.40 Eva Avilla-Royo (University of Zürich) *Healing-triggering biomaterials for fetal membrane repair in vivo*

14.40 – 14.55 Xiao-Hua Qin (ETH Zürich) *tomographic volumetric bioprinting of living bone-like constructs*

14.55 – 15.10 Mansoor Chaaban (University of Basel) *Is more always better? Modulating human adipose derived stromal cells chondrogenesis to achieve optimal bone remodeling in vivo*

15.10 – 15.30 Rapid fire poster session (led by Bianca Maria Carrara & Adam Korczak)

Maria Vittoria Colombo (Poster 3)

Ekaterina Maevskaia (Poster 24)

Andrea Vernengo (Poster 7)

Dominic Rütsche (Poster 29)

Paola Bermudez Lekerika (Poster 11)

Patrick Weber (Poster 34)

Franziska Breulmann (Poster 14)

Matthias Wiesli (Poster 37)

Gregor Miklosic (Poster 19)

Dalia Dranseikiene (Poster 41)

15.30 – 16.10 Coffee break & posters

16.10 – 19.00 Advanced strategies for the engineering and evaluation of tissues II (Chair: Pallav Kosuri; Co-chair: Dhananjay Deshmukh)

16.10 – 16.50 Keynote: Timm Schroeder (ETH Zürich) *Long-term single-cell quantification: New tools for old questions*

16.50 – 17.05 Nunzia Di Maggio (University of Basel) *VEGF dose controls the coupling of angiogenesis and osteogenesis in engineered bone*

17.05 – 17.20 Géraldine Guex (AO Davos) *Sound-based cell assembly to recreate complex tissue architectures for regenerative medicine*

17.20 – 17.35 Bruno Marco-Dufort (ETH Zürich) *Thermal stabilization of diverse biologics using reversible hydrogels*

17.35 – 17.50 Angela Bonato (ETH Zürich) *Silencing inflammatory signals in chondrocytes by CRISPR/Cas9 for tissue-engineered cell therapy in osteoarthritis*

17.50 – 18.05 Thomas Maurissen (Roche Innovation Center Basel) *Human 3D in vitro model of the inner blood-retinal barrier and diabetic retinopathy*

18.05 – 18.20 Patrick Jaeger (ETH Zürich) *Extracellular matrix crosslinking amplifies calcium-mediated mechanosensation*

18.20 – 19.00 Keynote online: Chris Chen (University of Boston) *Engineered 3D blood vessel and cancer models*

June 8th

8.30 – 10.20 Engineering Organoids (Chair: Rolf Zeller; Co-chair: Celine Labouesse)

8.30 – 9.10 Keynote: Giuliana Rossi (Roche Innovation Center Basel) *Capturing organ development in gastruloids*

9.10 – 9.25 Chiara Arrigoni (EOC Bellinzona) *Development of a patient-matched microfluidic arthritic joint model as a tool for personalized therapies*

9.25 – 9.40 Antonio Sileo (University of Basel) *Mid-throughput multimodal bioreactor platform for cardiac tissue engineering*

9.40 – 10.20 Invited: Adrian Ranga (KU Leuven) *Bioengineering organoid fate and morphogenesis*

10.20 – 10.50 Coffee break & posters

10.50 – 12.15 Bone: from development to engineering I (Chair: Arnaud Scherberich; Co-chair: Julien Guerrero)

10.50 – 11.30 Keynote: Dominique Pioletti (EPF Lausanne) *Soft hydrogels for strong tissues*

11.30 – 11.45 Seunghun S. Lee (ETH Zürich) *Silicon Nitride, A bioceramic for bone tissue engineering: a reinforced cryogel system with antibiofilm and osteogenic effects*

11.45 – 12.00 Romy Wiestner (EMPA St. Gallen) *Palladium- and platinum-based bulk metallic glasses with dual support for osseointegration and antimicrobial bioactivity*

12.00 – 12.15 Franziska Strunz (University of Bern) *Repair of a critical-size bone defect in estrogen-deficient mice treated with bisphosphonates*

12.15 – 13.45 Lunch & Poster session

13.45 – 15.35 Bone: from development to engineering II (Chair: Matteo Moretti; Co-chair: Daphne van der Heide)

13.45 – 14.25 Keynote: Rolf Zeller (University of Basel) *The molecular signatures of immature limb bud mesenchymal progenitors and their roles in development of the appendicular skeleton.*

14.25 – 14.40 Fatemeh Safari (University of Bern) *Inositol phosphatase SHIP1 regulates osteoclast development and Activity*

14.40 – 14.55 Phelipe Hatt (AO Research Institute) *Delivery of mesenchymal stromal cells using collagen membranes embedded in LEGO®-inspired multicomponent scaffolds for personalised mandibular defect repair*

14.55 – 15.35 Invited: Paolo Cinelli (University of Zürich) *Dissecting MSCs heterogeneity for improved bone bioengineering*

15.35 – 16.00 Coffee break & posters

16.00 – 17.30 4D Tissue engineering (Chair: Mark Tibbitt; Co-chair: Mira Jacobs)

16.00 – 16.45 Keynote *online*: Kristi Anseth (University of Colorado) *Bioengineering with light-responsive hydrogels*

16.45 – 17.30 Keynote: Wilfried Weber (University of Freiburg) *Modulating cell-material interactions with light*

17.30 End

18.30 Apéro and Zoo Zürich guided tour

20.00 Conference dinner at the Zoo of Zürich

June 9th

8.30 – 10.35 Mechanotransduction from cells to tissues (Chair: Wilfried Weber; Co-chair: Anna Puiggali-Jou)

8.30 – 9.10 Keynote: Jess Snedeker (ETH Zürich) *The mechanics of tendon biology: implications for orthopedic medicine*

9.10 – 9.25 Andrea Mainardi (University of Basel) *Towards modelling the joint on a chip: a mechanically active microfluidic system to engineer 3D multi-layer osteochondral tissues*

9.25 – 9.40 Amro Hussein (ETH Zürich) *Mechanical regulation of fibrogenic transcription in tendon fibrosis*

9.40 – 9.55 Lorenza Garau Paganella (ETH Zürich) *Development of a 3D tunable platform to investigate cell response to secondary mechanical stresses*

9.55 – 10.35 Invited: Benjamin Gantenbein (University of Berne) *Stem cell therapies for the regeneration of the intervertebral disc – is there hope?*

10.35 – 11.05 Coffee break & posters

11.05 – 12.20 Company / Startup / Clinical (Chair: Markus Rottmar; Co-chair: Kajentana Beve)

11.05 – 11.30 Invited: Fabienne Hartmann (CUTISS AG, Zürich) *DenovoSkin – Personalized skin to treat skin defects*

11.30 – 11.55 Invited: Shokoufeh Khodabandeh (Institut Straumann AG) *European Medical Device Regulation (MDR 2017/745) – MedTech in EU beyond May 2021*

11.55 – 12.20 Invited: Nicole Ochsenbein-Kölble (University Hospital Zürich) *Fetal surgery for Spina Bifida in Zürich*

12.20 – 12.50 GA

12.50 – 14.00 Lunch & Poster session

14.00 – 15.50 Advanced strategies for the engineering and evaluation of tissues III (Chair: Queralt Vallmajó Martín; Co-chair: Andrea Mainardi)

14.00 – 14.40 Invited: Priscilla Briquez (University of Freiburg) *Engineering of a bridge protein to improve BMP-2-mediated bone regeneration in spinal fusion*

14.40 – 14.55 Riccardo Rizzo (ETH Zürich) *From free-radical to radical-free: a biocompatible paradigm shift in light-mediated biofabrication*

14.55 – 15.10 Tino Stauber (ETH Zürich) *Il-6 signaling exacerbates hallmarks of chronic tendon lesions: From a tissue engineered tendon model towards treatment optimization*

15.10 – 15.50 Keynote: Pallav Kosuri (Salk Institute for Biological Studies, La Jolla) *Spatial transcriptome profiling in situ using MERFISH*

15.50 – 16.20 RMS Research award

16.20 – 16.40 Coffee break

16.40 – 18.30 Advanced cancer models (Chair: Martin Ehrbar; Co-chair: William Arthur Lackington)

16.40 – 17.20 Invited: Matteo Moretti (EOC Lugano) *Engineering 3D human multicellular bone models as anti-tumor drug screening platforms*

17.20 – 17.35 Simone Bersini (EOC Lugano) *A microfluidic model of human vascularized breast cancer metastasis to bone for the study of immune-cancer cell interactions*

17.35 – 17.50 Lisa Krattiger (University of Zürich) *An in vitro platform to study the recovery of therapeutically ablated vascular networks*

17.50 – 18.30 Keynote: Janine Erler (University of Copenhagen) *Engineering and exploring the cell material interface*

18.30 Closing remarks & awards