

Conference Program

9:30 – 10:30	Registration & Welcome Coffee <i>Please mention dietary restrictions during registration.</i>
10:30 – 12:45	Young Scientists (YS) Event – “Career path roundtable” <i>Academia:</i> Prof. Martin Stoddart (AO Research Institute Davos) <i>Academia:</i> Prof. Morteza Aramesh (ETH Zurich) <i>Industry:</i> Dr. Stéphanie Boder-Pasche (CSEM Neuchatel) <i>Start-up:</i> Dr. Jessica Gilgenbach (SmartPath AG)

13:20 – 13:30 **Welcome**, Markus Rottmar & Peter Wick

Session 1a: Latest Technologies & Breakthroughs on Classic Biomaterials
Chairs: Anna Marsano & Tino Jucker

13:30 – 13:55 Invited speaker: **Ardemis Boghossian (EPFL, Switzerland)**
"Bioengineering Near-infrared (NIR-II) Optical Nanosensors"

13:55 – 14:40 Talks selected from abstracts

O1: *"Engineering a multiplexing device for in vivo testing of hBMSC functions"*
M. Monticelli, B.M. Carrara, M. Ehrbar

O2: *"Laser-textured titanium implants: Enhanced integration in hard and soft tissue via designer surface topographies"*
W.A. Lackington, B. Bellon, P. Schweizer, A. Ambeza, A. Chopard-Lallier, A. Armutlulu, B. Pippenger, P. Schmutz, X. Maeder and M. Rottmar

O3: *"Cardiac Tissue Engineering with Metamaterials to fabricate Robust and Contractile Cardiac Tissue Patches"*

L.S. Jones, A. Bock, M. Aioldi, Q. Thijssen, H. Rodríguez Biefer, O. Dzemali, R. Katzschmann

14:40 – 14:55

Rapid fire poster presentations

RF1: *"Integration of Local Sensing Functionalities within Bioprinted Actuators"*

A. Badolato, A. Georgopoulou, D. Mock, M. Filippi, E. Amstad, R. Katzschmann

RF2: *"Towards a dynamic in vitro intestinal model using smart hydrogels"*

C. Spangenberger, T. Schwalm, J. Schoeller, R.M. Rossi, K. Maniura, M. Rottmar, **Y. Chandorkar**

RF3: *"Unlocking the Effect of Macropore Size and Ionic Exchanges on Osteoinduction"*

F. Elharouni, Y. Maazouz, M. Böhner

RF4: *"Investigating Time Scales of Mechanotransduction of Dermal Fibroblasts and Macrophages within a Macroporous Biomaterial via In Situ Stiffening"*

J. Mayner, C. Labouesse, M.W. Tibbitt

RF5: *"Bioengineering of a 3D Bioprinted Muscle-Tendon System"*

D. Mock, J. Fuentes, M. Filippi, A. Barteld, S. Eng, M. Guix, J.G. Snedeker, S. Sánchez, R. Katzschmann

RF6: *"Drug delivery with melt-spun liquid-core fibers"*

M. Röthlisberger, S. Dul, P. Meier G. Giovannini, R. Hufenus, **E. Perret**

RF7: *"Antibacterial copper oxide nanoparticles dispersed in PLGA/amorphous calcium phosphate hybrid nanocomposite for bone tissue engineering – impact of copper oxide concentration on angiogenesis"*

L. Näf, I. Miescher, L. Pfuderer, T. Schweizer, D. Brunner, J. Dürig, O. Gröninger, J. Rieber, **G. Meier Bürgisser**, K. Spanaus, M. Calcagni, Y. Achermann, W.J. Stark, and J. Buschmann

14:55 pm – 16:20

Poster Session and Coffee Break

Session 1b: Latest Technologies & Breakthroughs on Classic Biomaterials

Chairs: Matteo D'Este & Marcia Mürner

- 16:20 – 16:55 Keynote speaker: **Dominique Pioletti, (EPFL, Switzerland)**
"Thermomechanobiology: the next frontier for treating osteoarthritis"
- 16:55 – 17:25 Talks selected from abstracts
- O4: *"Effect of Calcium Phosphate Granules on Osteogenic Differentiation of hMSCs In Vitro"*
D. van der Heide, E. Della Bella, C. Stähli, Y Maazouz, M. Böhner, H. Yuan, F. de Groot-Barrère, M.J. Stoddart, M. D'Este
- O5: *"Application of reconstituted primary human bronchial epithelial cultures to understand potential biotransformation and safety of advanced materials in the upper airway"*
Z. Wang, J. Vernaz, M.B. Stange, N. Tagaras, A. Meyer-Plath, T. Buerki-Thurnherr, V.M. Kissling, S. Constant, G. Gupta, P. Wick
- 17:25 – 18:15 30th General Assembly &
Presentation of the 2024 RMS research award winner
- 19:00 – 23:00 Social Dinner at Restaurant «netts»

Thursday, September 5th 2024

Session 2a: Regenerative medicine approaches

Chairs: Matteo Moretti & Daphne van der Heide

- 8:30 – 9:05 Keynote speaker: **Patricia Dankers (TU Eindhoven, Netherlands)**
"Complex tissue-inspired materials based on supramolecular polymers"
- 9:05 – 9:50 Talks selected from abstracts
- O6: *"Engineering vasculature in human skin equivalence models through acoustofluidics"*
DV. Deshmukh, J. Polak, C. Fux, L. Krattiger, S. Pravato, D. Rütsche, M. Ehrbar, J. Dual, M. Meboldt, M.W. Tibbitt

O7: "Modular Bilayered Biofabrication Strategy for Functional Skeletal Muscle Tissue Engineering"

A. Balciunaite, M. Filippi, P. Paniagua, O. Yasa, R.K. Katzschmann

O8: "VEGF Chemically Modified mRNA-loaded Matrix for Vascularized Bone"

A. Vescovi, M. Roque, E. Bonvin, C. Plank, F. de Groot, M. Stoddart, M. van Griensven, E.R. Balmayor, J. Amédée, A. Banfi, N. Di Maggio

9:50 – 10:20

Coffee Break

Session 2b: Regenerative medicine approaches

Chairs: Maartje Bastings & Antonio Sileo

10:20 – 10:45

Invited speaker: **Mark Tibbitt (ETHZ, Switzerland)**

"Porosity and perfusion: providing physiologic environments for regenerative medicine"

10:45 – 11:45

Talks selected from abstracts

O9: "A regenerative bioadhesive for the treatment of infected corneal ulcers"

M. Viola, Y. Chandorkar, A. Mittelholzer, A. Atienza Ugarte, K. Wei, K. Dole, S. Joshi, S. Pot, M. Rottmar

O10: "A customizable autologous tissue engineering strategy for bone (re)construction"

A. Moya, P. Pfister, S. Jung, R. Paillaud, I. Martin, M. de Wild, **A. Scherberich**

O11: "In vitro and in vivo evaluation of a gentamycin-vancomycin loaded emulsion-based hydrogel for orthopedic device-related infection"

C. Siverino, **P. Nylund**, A. L. Foster, W. Boot, S. Zeiter, R.G. Richards, A. Montali, M. D'Este, T.F. Moriarty

O12: "Glutathione-responsive nanogels for intracellular drug delivery"

S. Bernhard, C. Söll, G. Da Silva André, L. Cunningham, R. Frischknecht, G. Bovone, E. Mauri, M.W. Tibbitt

11:45 – 12:00

Rapid fire poster presentations

RF8: *"Bone Marrow Mesenchymal Stromal Cells induce in vivo Bone Marrow Organoids (BMOs) recapitulating native organ complexity"*

B.M. Carrara, C. Bataclan, O. Naveiras, M. Ehrbar

RF9: *"Glucagon-like Peptide-1 (GLP-1) Receptor Agonist as Disease Modifying Osteoarthritis Drug – a study on Human Articular Chondrocytes Pellet and 3D Scaffold Models"*

E. Ciftci, F. Berenbaum, M. Alini, S. Grad, Z. Li

RF10: *"Replacement of tumor xenograft mouse models by biophysically and molecularly defined 3D in vitro systems"*

G. Da Silva André, S. Sander, C. Tringides, C. Labouesse, J. Dengjel, M.W. Tibbitt

RF11: *"Role of non-canonical pathways and side effects of glucocorticoids in the regulation of osteogenic differentiation"*

L. Wespi, A. Stegmaier, M.J. Stoddart, E. Della Bella

RF12: *"A holistic disease model for ex vivo testing of biological treatment strategies for intervertebral disc regeneration"*

M. Mürner, R.V. Balasubramanian, F. Chencheng, J. Fernández-Pérez, A. Ovsianikov, S. Grad

RF13: *"Light Irradiation of N-doped Graphene Acid: Metal-free Strategy towards Antimicrobial Coatings with Dual Mode of Action"*

G. Reina, D. Panacek, K. Rathhammer, S. Altenried, P. Meier, P. Navascués, Z. Baďura, P. Bürgisser, V. Kissling, Q. Ren, R. Zboril, P. Wick

12:00 – 13:30

Poster Session and Lunch Break

Session 3a: Advanced in vitro Tissue Models

Chairs: Arnaud Scherberich & Mira Jacobs

13:30 – 14:05

Keynote Session:

Florian Gröber-Becker (Würzburg, Germany):

"Advancements in In Vitro Human Barrier Modelling"

14:05 – 14:50

Talks selected from abstracts

O13: *"Improved cardiac engineered tissue maturation with integrated passive and active mechanical stimulations"*

A. Sileo, A.C. Gülan, D. Meunier, S. Gabetti, D. Massai, A. Marsano

O14: *"Development of an in vitro 3D Vascularized and Humanized Bone Model that Recapitulates Estrogen Deficiency Representative of Osteoporotic Phenotype"*

M. Bukhari, M. Naqvi, L. McNamara

O15: *"Biofabrication of a 3D Human Skeletal Muscle Microenvironment to Study the Early Steps of Fibrosis"*

M. Ishmaku, R. Francescato, M. Francese, S. Monestier, V. Martini, M. Ugucioni, G. Talò, S. Bersini, M. Moretti

14:50 – 15:20

Coffee Break

Session 3b: Advanced in vitro Tissue Models

Chairs: Lisa Krattiger & Stella Monestier

15:20 – 15:50

Talks selected from abstracts

O16: *"Extracellular matrix remodelling in fibrosis: in vitro 3D models in synthetic hydrogels"*

M. Mitsi, F. Genovese, T. Chrysoulidou, H.S. Hector, B. Kammall, Y.M. Moreno, G. Akbatani, B. Simona, M. Ehrbar

O17: *"A human glioblastoma organ-on-chip model for personalized prediction of drug response"*

S. Camenisch, T. Hoch, M. Neidert, A. Zeitlberger, N. Velez Char, T. Hundsberger, W. Jochum, P. Wick, **V. Ayala-Nunez**

15:50 – 16:15
Switzerland)

Invited speaker: **Laura Suter-Dick (FHNW,**

"Multicellular liver microtissues for the investigation of liver fibrosis"

16:15 – 16:30

Exabone annual meeting awards & Closing Remarks