

3rd
**Next
Gen**



**Organ-
on-chip**

**&
Organoids**

Diamond sponsor



Institute of Human Biology

Location partners



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Exhibitors



Welcome to the Technopark Zürich!



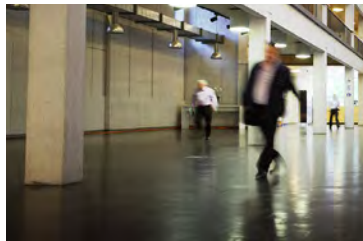
Dear participants,

We are excited to welcome you to the 3rd edition of the Next Gen Organ-on-Chip & Organoids Workshop. Taking place this year in another biotech hot spot of Switzerland – Zürich, we have concentrated all the learnings from the last year to offer you an even more exciting program in 2023!

Since last year, important milestones have been achieved. First and foremost, new medicines need not be tested in animals to receive U.S. Food and Drug Administration (FDA) approval, according to legislation signed by President Joe Biden in late December 2022. This new legislation opens new avenues and accelerates the adoption of 3D cell culture models throughout the drug development process. This

potential has been clearly recognized by all large pharma companies. Among them, our Diamond Sponsor Roche took a leading role through the creation of the new Institute of Human Biology dedicated to research in organoids, human model systems and translational bioengineering.

The bioconvergence revolution is here! By combining digital and material science with biotechnology, this exciting field allows humanity to unlock the full potential of data & digital for a better future of healthcare. The Next Gen Organ-on-Chip & Organoids aims at being the place with the thought leaders, innovators and suppliers from various disciplines meet to imagine the future, network, create new business



relationships and finally accelerate the translation of emerging technologies into industrial applications.

We would like to thank our Scientific Committee to have put together such a rich program. Take advantage of the break to visit the exhibition spaces and learn more about the latest innovations. We look forward to fruitful and inspiring exchanges in the next two days!

Sincerely yours,

CSEM Organization Team

Scientific Committee

- Adrian Roth, Roche
- Erika Györvary, CSEM
- Olivier Frey, InSphero
- Samantha Paoletti, CSEM
- Massimo Mastrangeli, Technical University Delft
- Gilles Weder, CSEM
- Kasper Renggli, Philipp Morris International
- Vincent Revol, CSEM
- Rhiannon David, Astra Zeneca

Program highlights

DAY 1 • THURSDAY, AUGUST 24, 2023

9:30 Registration

OPENING SESSION

KEYNOTE LECTURE

HOPE for Closing the Preclinical Gap



KEYNOTE LECTURE

ANNIE MOISAN

PROGRAM DIRECTOR AT WELLCOME LEAP

Human Organs, Physiology & Engineering (HOPE)

TOXICOLOGY SESSION

12:20 Lunch

VASCULARIZATION & IMMUNE SYSTEM SESSION

AUTOMATION, STANDARDIZATION & AI SESSION

PERSONALIZED THERAPY SESSION

SCIENCE SLAM

18:00 Aperó Riche

19:00 End of the first day

Diamond sponsor



Institute of
Human Biology

DAY 2 • FRIDAY, AUGUST 25, 2023

8:30 *Welcome by the Life Science Cluster Zürich*

EMERGING TECHNOLOGIES SESSION

INSTRUMENTATION SESSION

11:45 Lunch

KEYNOTE LECTURE

Stem cell-based organoids in human disease



PROF. HANS CLEVERS, M.D., PH.D.
HEAD OF PHARMA RESEARCH & EARLY DEVELOPMENT (PRED)
Roche

WOMEN HEALTH & UNDERREPRESENTED MAJORITIES SESSION

15:00 End of the program

Gold sponsors

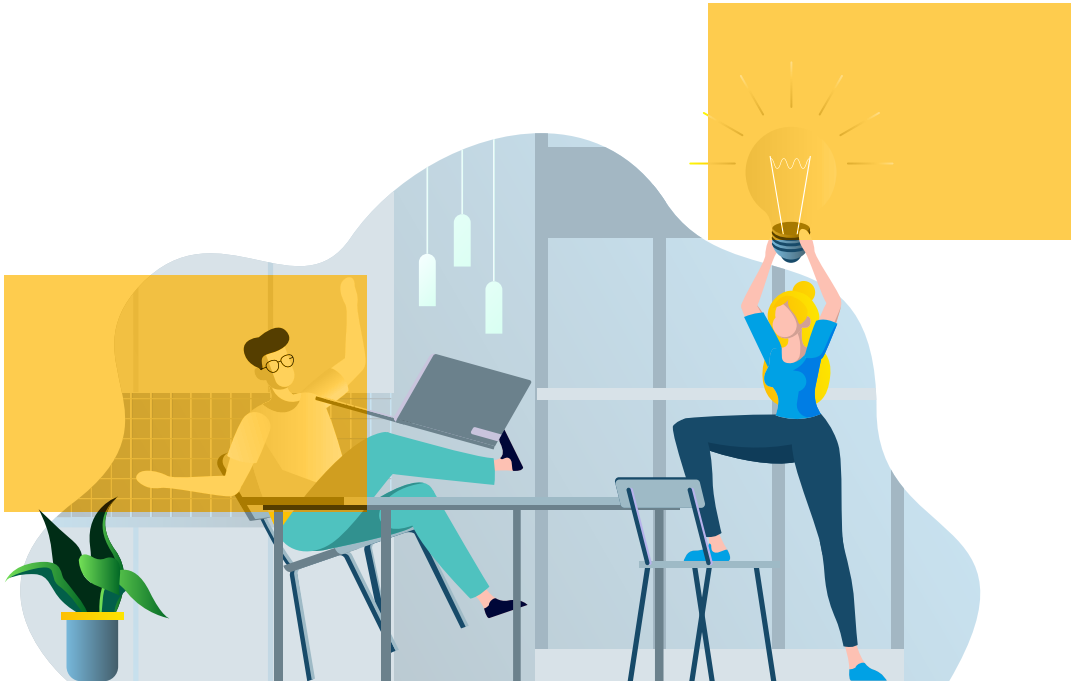


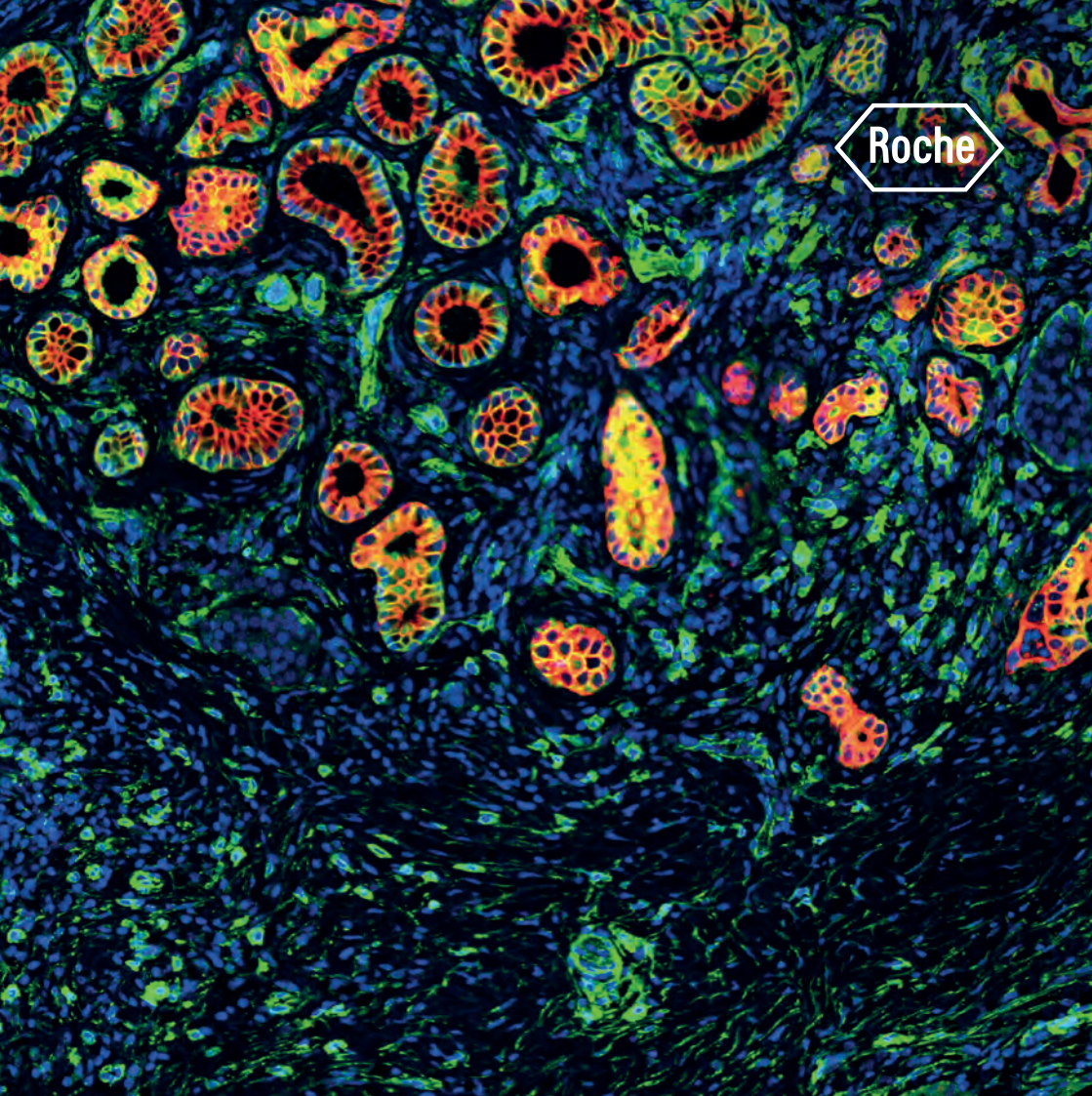
Science Slam

This year, we want to put our new talents under the spotlight!

We invited **8 PhD students** to compete in a Science Slam! Each of them will present their research in a short and entertaining pitch. While learning about the latest research in the field in a fun and unconventional way, **the audience will vote** on the winner of the contest!

Be ready for an exciting and rich session with our selected PhD students!





Roche

Institute of
Human Biology

Engineering the most advanced
human model systems for drug
discovery, drug development and
precision medicine.

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09:30 **Welcome & registration**

OPENING SESSION

10:00 **Welcome to the 3rd workshop on Next Gen Organ-On-Chip & Organoids**
Vincent Revol, Samantha Paoletti, Gilles Weder, CSEM

10:10 **Opportunities in the Swiss Biotech ecosystem**
Michael Altorfer, CEO, Swiss Biotech Association

10:20 **KEYNOTE LECTURE • SPONSORED BY HNP MIKROSYSTEME**
Chaired by Adrian Roth, Principal Scientific Director PHC, Roche



ANNIE MOISAN
PROGRAM DIRECTOR AT WELLCOME LEAP
 Human Organs, Physiology & Engineering (HOPE)

HOPE for Closing the Preclinical Gap

As the HOPE Program Director at Wellcome Leap, Annie leads multidisciplinary teams aiming to deliver scientific breakthroughs in human health by leveraging on engineered human models that recreate tissue function, vascularization and immune competency. Prior to Leap, Annie worked in Pharma where she developed and applied advanced human cell models for preclinical drug profiling and mechanistic understanding of drug toxicity, in close collaboration with academic institutions, start-ups and biotech partners. Annie trained as a postdoctoral fellow in cancer stem cell biology at Harvard Medical School and earned her Ph.D. in cell biology from University of Sherbrooke, Canada.

TOXICOLOGY SESSION • SPONSORED BY FLUIGENT

11:05 **Session opening**
Kasper Renggli, Senior Scientist, Philipp Morris International

11:10 **Application of Microphysiological Systems in Investigational Toxicology at Bayer – Overview and Use Cases**
Özlem Vural, Expert Microphysiological Systems, Bayer

11:25 **2D and 3D human endothelial cell models to assess vascular toxicity**
Francesca Moretti, Principal Scientist, Preclinical Safety, Novartis Pharma

11:40 **Assessment of PK/PD and dynamic toxicity using plug-and-play microfluidics in standard well plates**
Berend van Meer, CTO, Biovitronix

11:55 **Opening of the exhibition**

12:20 **Lunch**

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FLUIGENT
SMART MICROFLUIDICS

VASCULARIZATION & IMMUNE SYSTEM SESSION • SPONSORED BY USHIO

 13:40 **Session opening**
Loïc Burr, Group Leader Biosensing, CSEM

 13:55 **Engineering organoids and organ-on-chip models of the human vasculature**
Reiner Wimmer, Principal Scientist, Roche

 14:10 **Advancing Drug Discovery with High-Throughput Vascularized Tissue Models in Organ-on-Chip Technology**
Dorota Kurek, Senior Scientist Model Development, MIMETAS

 14:25 **Immunocompetent lung-on-chip model for safety testing**
Janick Stucki, CEO & Technical Director, Alveolix

AUTOMATION, STANDARDIZATION & AI SESSION • SPONSORED BY INSPHERO

 14:40 **Session opening**
Olivier Frey, VP Technologies and Platforms, InSphero

 14:45 **Augmented value of spheroids through automation – What's next?**
Bhavik Chouhan, Associate Director, Hepatic Safety, AstraZeneca

 15:00 **Multi-Organ-Chips in Safety and Efficacy Testing**
Ilka Maschmeyer, Senior Scientist, Tissuse

 15:15 **MatriMix: Novel 3D Hydrogel System Enhances Regenerative Capacity of Stem Cells and Improves Tailorability of Biologics**
Alex Sim, CEO, AMSBIO

 15:30 **Unsupervised Machine Learning Enables Organoid Sorting from Latent Morphologies**
Tim Heinemann, Senior R&D Engineer, AI for Life Sciences, CSEM

 15:45 **Coffee**

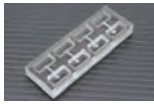
USHIO provides original MPS products, and platform services to realize your MPS.

Nerve MPS Plate & AI Neurotoxicity Analysis

Open Innovation Platform

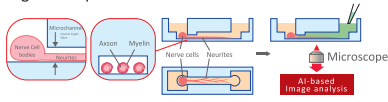
Making Neurotoxicity Evaluation
Simpler and More Accurate

For realizing your Organ on Chip
and new evaluation workflow



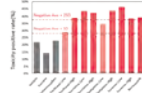
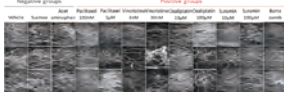
Collaboration with Prof. Ikuro Suzuki
TOHOKU INSTITUTE OF TECHNOLOGY

Peripheral Neurotoxicity Evaluation based on AI image analysis reading the shape of neuritis in the microchannel



-Representative local immunofluorescence image samples of neurites in a microchannel after drug administration.

-AI showed the potential for drug-induced neurotoxicity even at low concentrations.



Prototype

Discuss MPS design based on customer's proposal

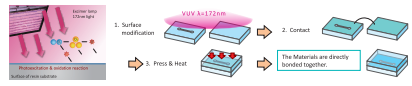
Scale up

Evaluation of Practicality, Feedback and design

Mass Production

Proposal for full-scale adoption into your workflow

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PERSONALIZED THERAPY SESSION • SPONSORED BY NOVARTIS

16:15 *Session opening*
Massimo Mastrangeli, Associate Professor, TU Delft

16:20 *Clinical application of 3D cell culture*
Salvatore Piscuoglio, Research Group Leader, University of Basel

16:35 *Clinical implementation of functional precision medicine*
Jens Kelm, CEO, PreComb

16:50 *A versatile tumour-on-a-chip platform for precision oncology*
Michele Zagnoni, CEO, ScreenIn3D

17:05 *Recent progress on the cancer models built on chips for personalized immunotherapies*
Prateek Singh, CEO, Finnadvance

17:20 SCIENCE SLAM • SPONSORED BY ROCHE INSTITUTE OF HUMAN BIOLOGY

Science Slam Opening
PhD students present their work
Science Slam Award Ceremony

18:00 **Apero Riche**

19:30 **End of the first day**



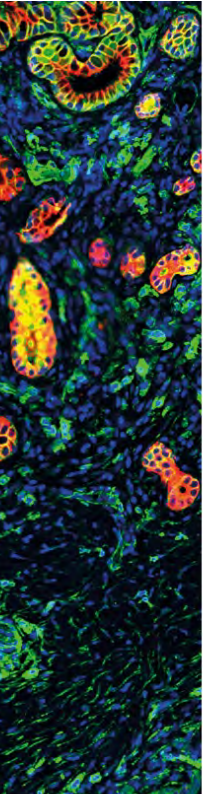
Precision Liquid Handling Workshop

EPFL Microcity, Neuchâtel • November 29, 2023



Institute of Human Biology

Engineering the most advanced human model systems for drug discovery, drug development and precision medicine



08:30 **Welcome by the Life Science Cluster Zürich**

Mario Jenni, Co-founder & CEO, Bio-Technopark

EMERGING TECHNOLOGIES SESSION • SPONSORED BY CELL MICROSYSTEMS

08:40 **Session opening**

Felix Kurth, Group Leader Biosystems Engineering, CSEM

08:45 **Towards fully-electric organs-on-chip**

Massimo Mastrangeli, Associate Professor, TU Delft

09:00 **Cardioids a new paradigm for cardiovascular drug discovery**

Florian Fuchs, CTO, HeartBeatBio

09:15 **Liquid Microphysiological Systems: Multiplexing & Systemic Communications**

Grégory Segala, CEO, FluoSphera

09:30 **Minimizing inert materials to improve cell-to-cell contact within chips: from membranes to meshes**

Sandra González, Biology Manager, BeOnChip

09:45 **Cancer-mediated Axonal Guidance and Excitability of 3D Sensory Neurons in a MEA-based Innervation Chip**

Paolo Cesare, Group Leader, Natural and Medical Sciences Institute, University of Tübingen
Rosanna Toscano, Business Developer Life Sciences, FemtoPrint

10:00 **Coffee**

INSTRUMENTATION SESSION • SPONSORED BY 3BRAIN

10:25 **Session opening**

Rhiannon David, Director, Microphysiological Systems (MPS), Astra Zeneca

10:30 **Microphysiological systems featuring microfluidic and microsensor structures**

Andreas Hierlemann, Department Biosystems Science and Engineering, ETHZ

10:45 **From image to result -generating beautiful images & data from your 3D in-vitro model system**

Anne Wuttke, Innovation Manager Bio-Med, Carl Zeiss

11:00 **Enabling next generation functional characterisation of human neuronal organoids**

Marie Obien, PhD - Co-founder and CCO & Silvia Oldani, PhD - Field application scientist, Maxwell

11:15 **Biosensor Systems for Organ on a Chip monitoring**

Michael Langenmair, Sales Engineer, Jobst Technologies

11:30 **ClinoStar a purpose-built system for culturing cells as in vivo mimetic 3D structures**

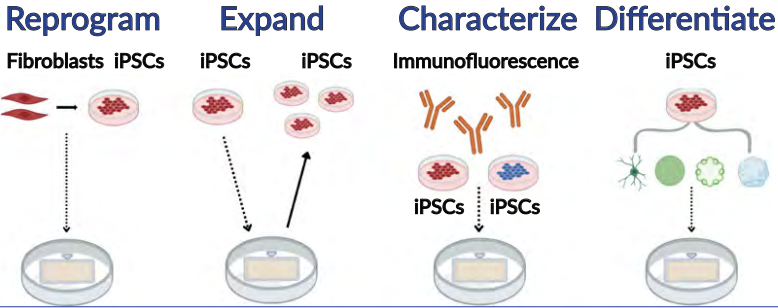
Krzysztof Wrzesinski, PhD, CSO and co-founder, CelVivo

11:45 **Lunch**

A FLUIDICS-FREE SOLUTION

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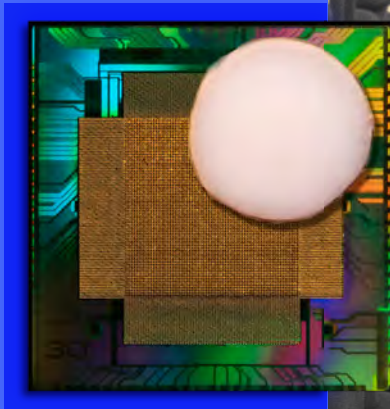
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13:15 **KEYNOTE LECTURE • SPONSORED BY AMSBIO**
 Chaired by **Thomas Valentin**, Group Leader Automated Sample Handling, CSEM



PROF. HANS CLEVERS, M.D., PH.D.
HEAD OF PHARMA RESEARCH & EARLY DEVELOPMENT (PRED)
 Roche

Stem cell-based organoids in human disease

Hans Clevers obtained his MD degree in 1984 and his PhD degree in 1985 from the University Utrecht, the Netherlands. His postdoctoral work (1986-1989) was done with Cox Terhorst at the Dana-Farber Cancer Institute of the Harvard University, Boston, USA. From 1991-2002 Hans Clevers was Professor in Immunology at the University Utrecht and, since 2002, Professor in Molecular Genetics. From 2002-2012, he was director of the Hubrecht Institute in Utrecht. From 2012-2015 he was President of the Royal Netherlands Academy of Arts and Sciences (KNAW). From June 2015-2019 he was director Research of the Princess Máxima Center for pediatric oncology.

As of March 18th, 2022 Hans Clevers is the Head of Pharma Research and Early Development and a Member of the Enlarged Corporate Executive Committee of F.Hoffmann-La Roche Ltd , in Basel Switzerland.

WOMEN HEALTH & UNDERREPRESENTED MAJORITIES SESSION • SPONSORED BY MICROFLUIDIC CHIPSHOP

14:00 **Session opening**
Samantha Paoletti, Head Research and Business Development, CSEM

14:05 **Are there sex differences in in vitro models for brain disorders? – A perspective from the Women’s Brain Project**
Melanie Einsiedler, Neuroscientist, Women’s Brain Project

14:15 **Organ-on-a-Chip Systems for Women’s Health Applications**
Peter Loskill, Department for Microphysiological Systems, Institute of Biomedical Engineering, Eberhard Karls University Tübingen

14:25 **Pannel discussion | Moderation: Samantha Paoletti, CSEM**
Melanie Einsiedler, Neuroscientist, Women’s Brain Project
Peter Loskill, Department for Microphysiological Systems, Institute of Biomedical Engineering, Eberhard Karls University Tübingen
Burçak Yesildag, InSphero
Rhiannon David, Astra Zeneca
Adrian Roth, Roche

14:50 **Closing words**
Organization committee: Erika Györvary, Samantha Paoletti, Vincent Revol, Gilles Weder

15:00 **End of the program**

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The logo for Microfluidic ChipShop, featuring the word "microfluidic" in a smaller, teal font above "ChipShop" in a larger, bold, black font. A teal line with a dot at the end curves around the text.

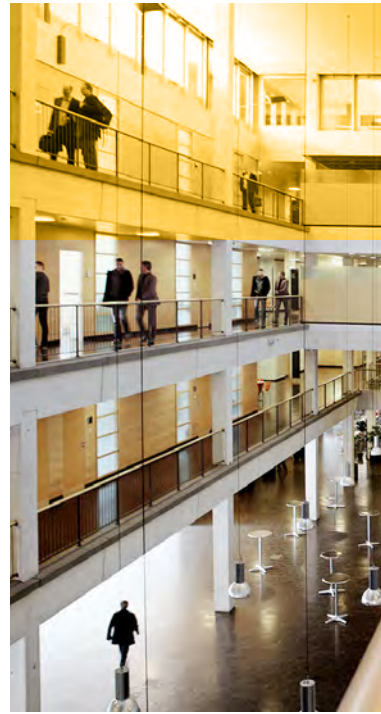
microfluidic
ChipShop

A teal banner with the text "Microfluidics For Your Needs" in white, bold, sans-serif font, positioned over a background image of various microfluidic chips and components.

Microfluidics For Your Needs



- Custom development and manufacturing
- Assay implementation
- Instrumentation
- Lab-on-a-Chip Catalogue - your microfluidic toolbox



Venue

This event will take place on August, 24 and 25, 2023 at the Technopark Zürich, Technoparkstrasse 1, 8005 Zürich

Find us in a flash !



Forum exhibition plan

BOOTH #	COMPANY
1	Carl Zeiss
2	BEOnChip
3	Elveflow
4	Microqubic
5	Multichannel Systems
6	Evident Scientific
7	Microfluidic ChipShop
8	AMSBIO
9	Cell Microsystems
10	Fluigent
11	Alveolix
12	3Brain
13	Maxwell Biosystems
14	HNP Mikrosysteme
15	Ushio
16	Sun Bioscience
17	FEMTOprint
18	InSphero
19	Cellenion
20	BiomimX
21	Molecular Devices
22	COMSOL Multiphysics
23	Prospective Instruments
24	STEMCELL Technologies
25	Fluosphera
26	Demcon Biovitronix
27	Susos
28	Life Science Cluster Zürich

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