Zurich University of Applied Sciences

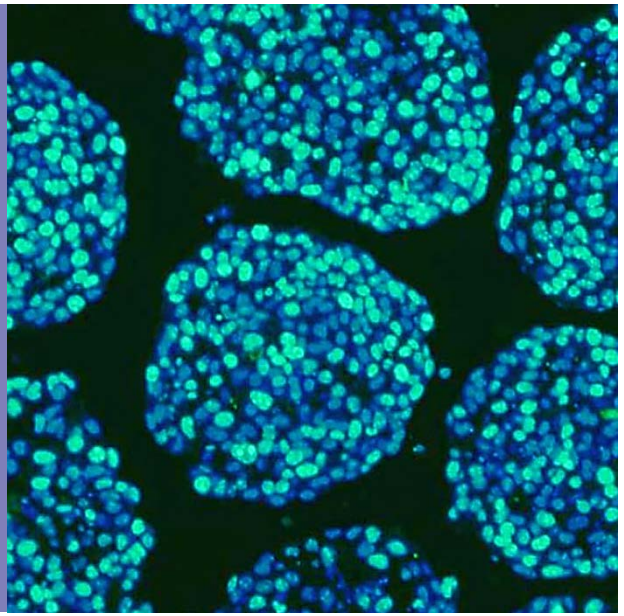
zh aw Life Sciences and Facility Management

Institute of Chemistry and Biological Chemistry

Welcome

7th Wädenswil Day of Chemistry

Exhibition Slam



Partners

SWISS BIOTECH National Thematic Network

STCS SWISS TISSUE CULTURE SOCIETY

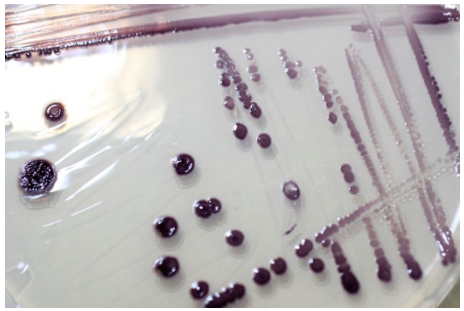
AAT eu

Universität Konstanz

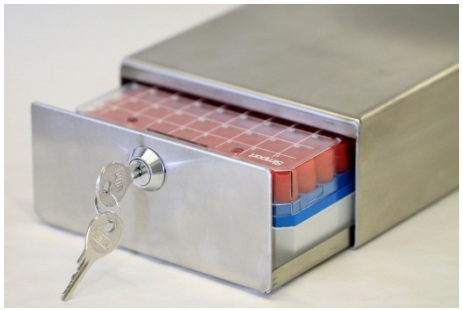
Johns Hopkins Bloomberg School of Public Health

Who we are

Culture Collection of Switzerland



Strains



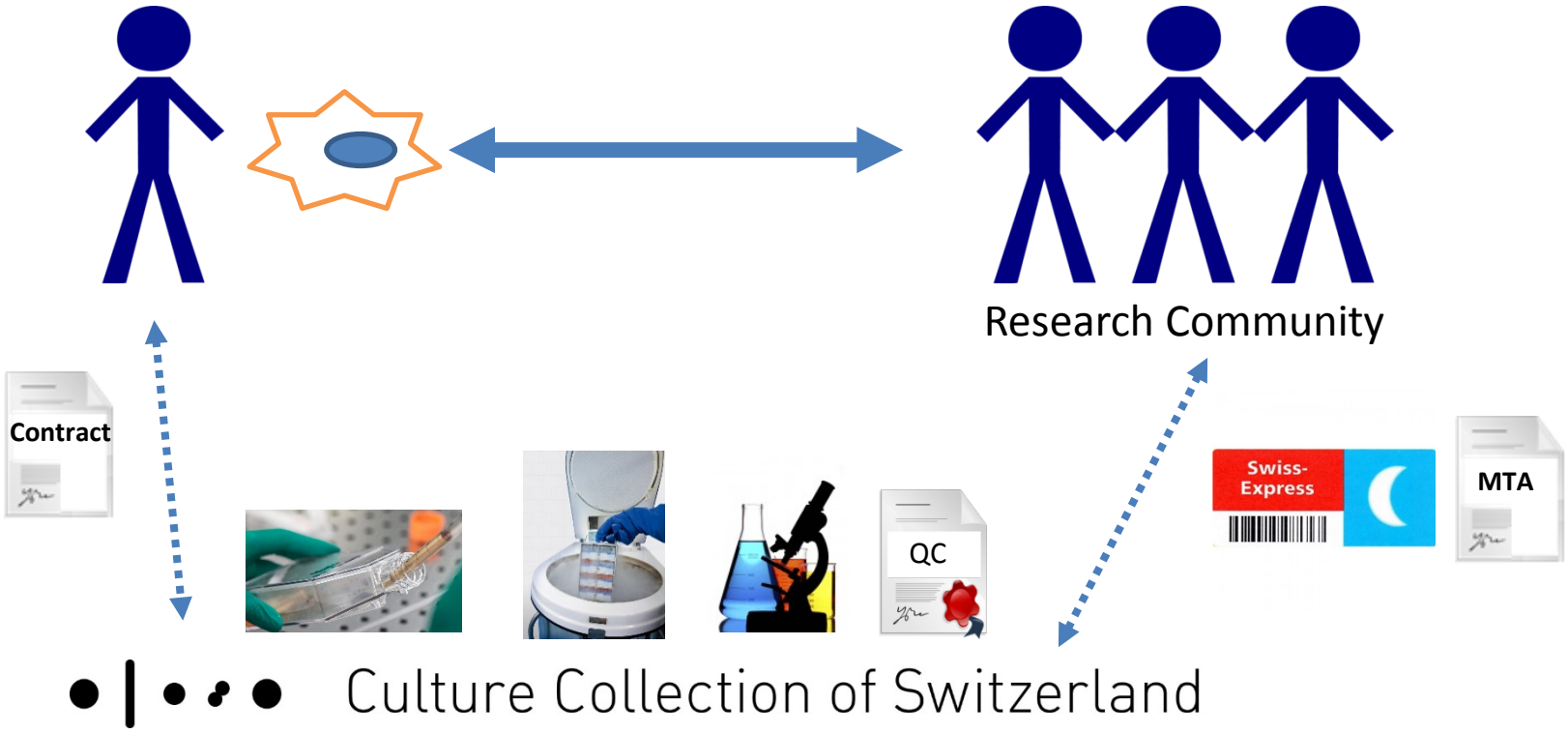
Cryostorage

Customised Services

CCOS, Einsiedlerstr. 34, CH-8820 Wädenswil, www.ccos.ch

What we'd like to share with you

Share your biological material



Cell Culture Technologies

- Independent Swiss private company founded in 1992
- Development and manufacturing of minimal culture media consisting of chemically defined mixtures of molecules
- Each molecule characterised by CAS/EINECS numbers
- No serum, proteins, peptides, hydrolysates, extracts etc.
  No animal-derived ingredients
- www.cellculture.com

What we'd like to share with you

- Cell Culture Technologies offers know-how to
  - Eliminate undesired medium components
  - Develop chemically defined culture media
  - Adapt media formulations to particular applications
  - Cultivate cells in minimal culture media

- Collaboration under Technical Assistance Agreements: Material, Methods, Meetings

- Intellectual property rights arising from technical collaborations typically transferred to customers

Who we are

Spin off of the University of Pisa

Team: 10 years of experience in advanced 3D in-vitro models

Goal: provide the biologists with technology and know-how to refine the in-vitro models

What we'd like to share with you

LiveBox1

A single flow bioreactor for metabolic organs simulation

LiveBox2

A double flow bioreactor with a membrane to mimic physiological barriers

Advanced cell culture systems:

- Human organ environment simulation
- Multi-organ models

Liver

Intestine

Heart

Ureter

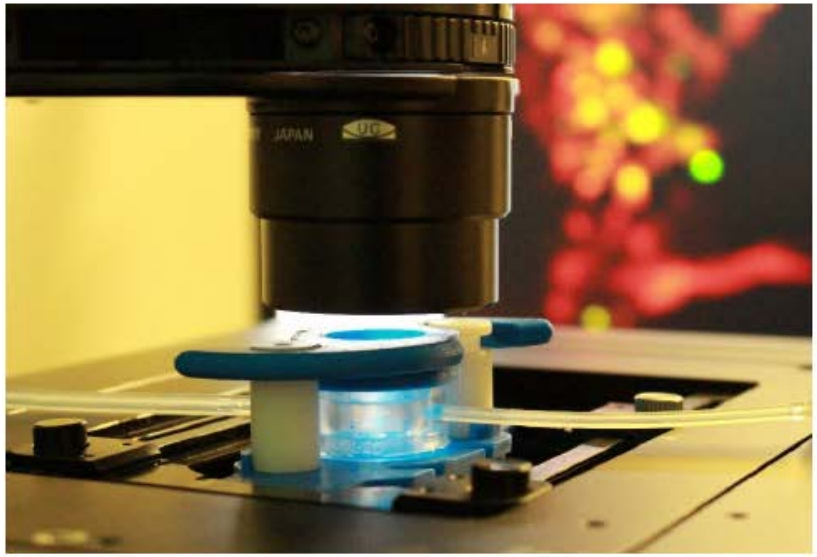
Lung

Vessels

What we'd like to share with you

Advanced cell culture systems:

- Human organ environment simulation
- Multi-organ models
- 3D and dynamic cell cultures
- Real time monitoring



Products distributed by:

Dunn Labortechnik GmbH

What we'd like to share with you

Second in-vitro alternatives workshop

Dates: 23th - 24th July 2015

Where: Istituto di Fisica Applicata "Nello Carrara", via Madonna del Piano 10, 50019, Sesto Fiorentino (FI), Italy

Registration deadline:

30 June 2015

Register at: info@ivtech.it

IFAC

Centro E. Piaggio
bioengineering and robotics research center

ricercare
www.icare-italia.org

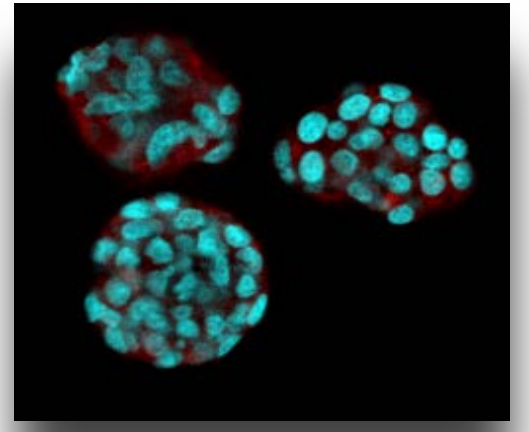
UPM – The Biofore Company

- UPM leads the integration of bio and forest industries into a **new, sustainable and innovation-driven** future
- Cost leadership, change readiness, engagement and safety of our people form the foundation of our success
- In 2014, UPM's sales totalled € 9.9 billion. UPM has production plants in 13 countries. Our 20,000 people work in 45 countries across six continents

GrowDex® hydrogel for 3D cell cultures

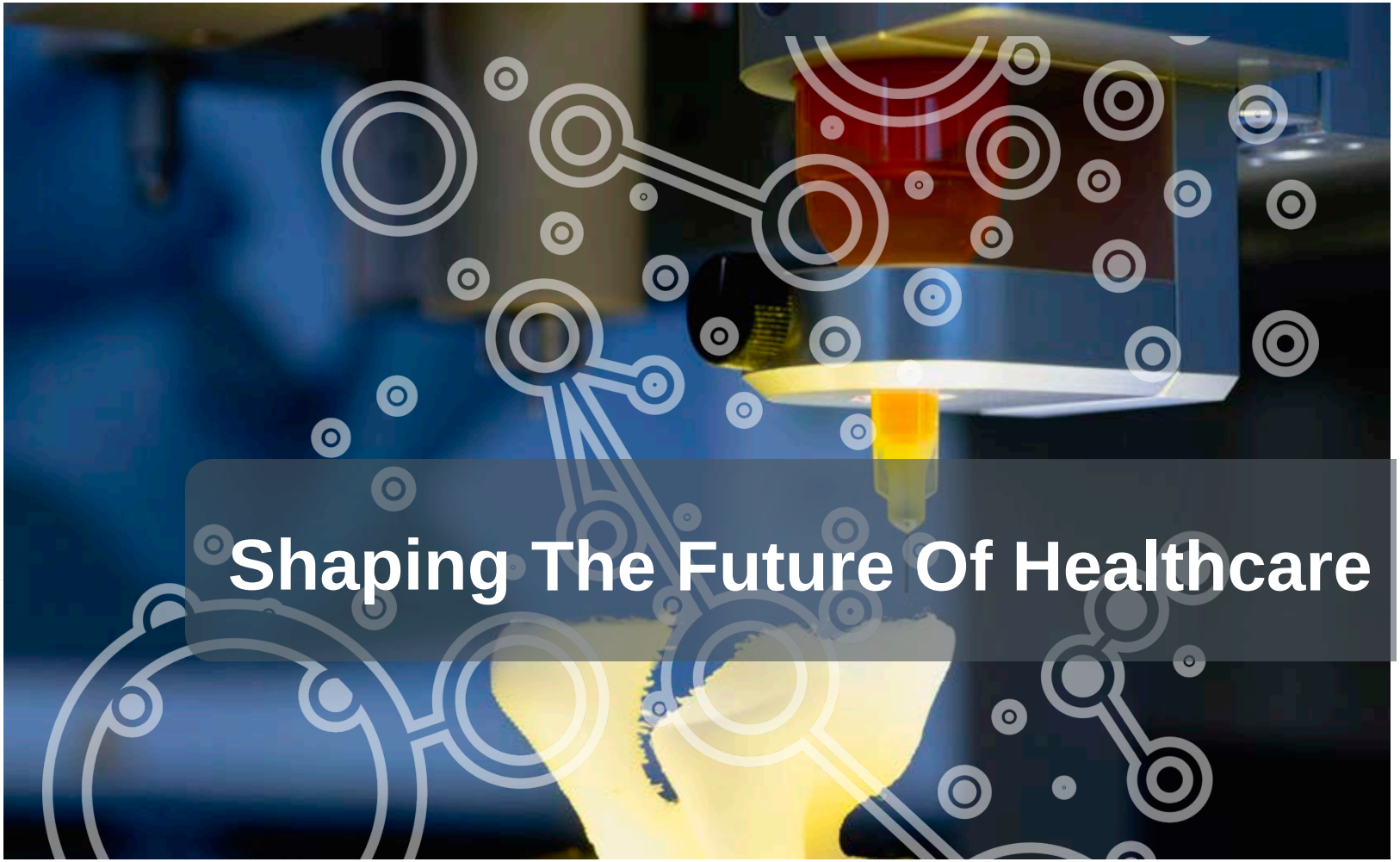
- GrowDex® is UPM's cellulose nanofibril hydrogel for 3D cell cultures
- GrowDex® is highly biocompatible with human cells and tissues but does not contain any animal- or human-derived components
- GrowDex® can be tuned to fulfill the requirements of different cell types
- GrowDex® is easy to use: no crosslinking needed, working temperature 5 to 50°C
- GrowDex® hydrogel can be completely degraded by enzyme treatment
- GrowDex®'s benefits are supported with scientific research and publications

HepG2 spheroids cultured in GrowDex® hydrogel



Robotic dispensing of GrowDex®

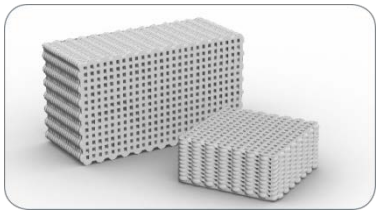
Who we are



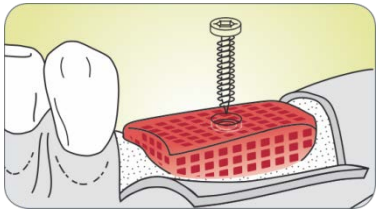
What we'd like to share with you

OsteoFlux®
BONE GRAFTING SOLUTION

- 3D printed synthetic bone grafting solution with unique bioarchitecture fostering angiogensesis

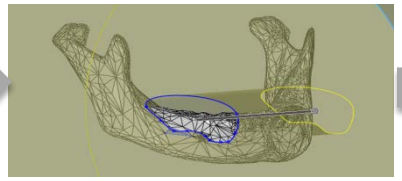


- OsteoFlux® provides patients & healthcare providers with unique benefits:
  - Better augmentation volume predictability than xeno- & autografts
  - Eliminates autogenous grafting & extraction-volume limitations
  - Superior ability to precisely shape BGS for individual patients
  - No risk of disease transmission or immune reaction

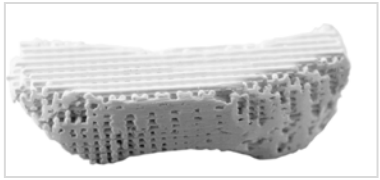


- Personalized solution using 4DPrinting CAD/CAM :

Digital imaging
(CT /MRI / X-ray)



Defect visualization and segmentation

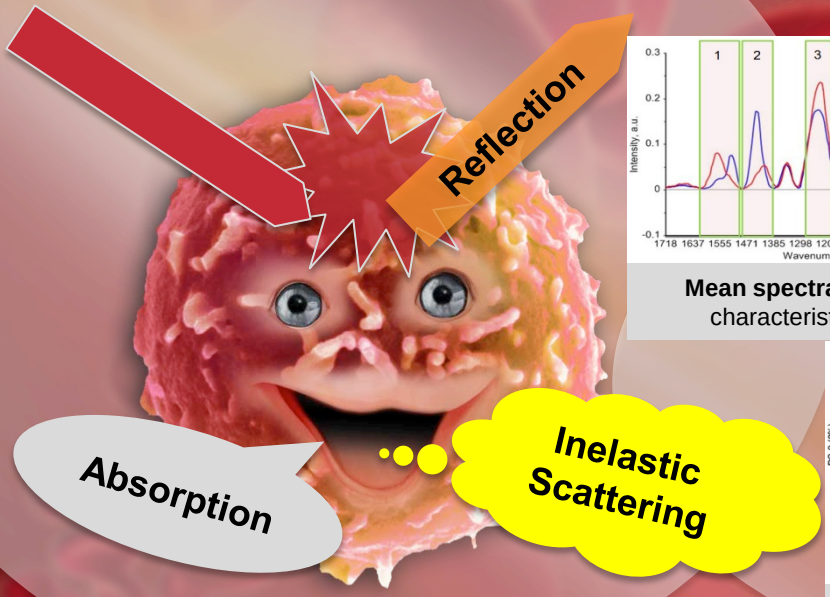


Additive manufacturing
(OsteoFlux® custom)

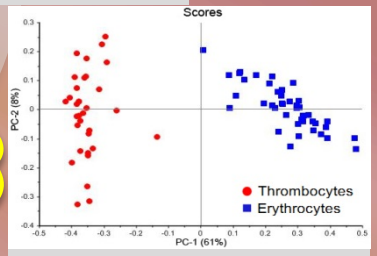
BioRam®: Reinvent Cell Analysis

Raman spectroscopy is an ubiquitous cell bio-marker - solely based on light effects

Photons hit biomolecules of a cell and are ejected with shifted frequencies that yield a specific spectral pattern.



Mean spectra to identify characteristic peaks



Statistical analysis to visualize separation

The “photonic marker” is unique, like a **fingerprint,** and depicts changes in the metabolome of the cell.

- ✓ during cell growth
- ✓ with differentiation
- ✓ caused through disease
- ✓ induced by drugs or toxins

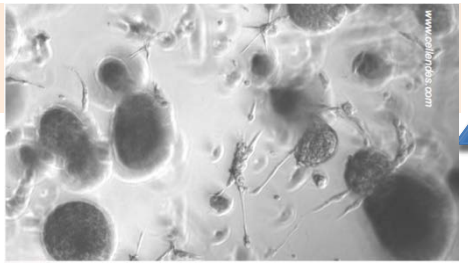
BioRam® Great Potential in Biology and Medicine

Safe and sound with BioRam®
Quality control & sample validation

- Increase safety for your patients
- Benefit from non-destructive analysis
- Ensure quality of cell based therapeutics
- Guarantee cell viability and functionality

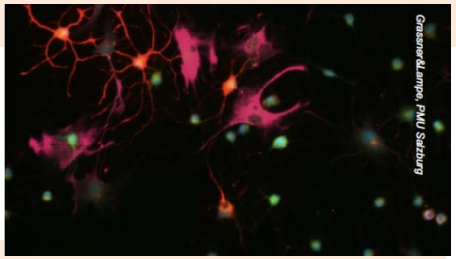
Shed light into cell behavior
Cell culture & drug screening

- Identify cell types and subpopulations
- Monitor cell state and development
- Diagnose molecular changes induced by treatment and disease



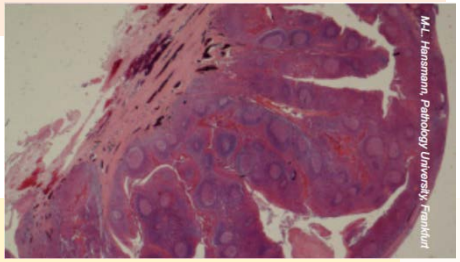
See the whole spectrum of cell development
Stem cells & regenerative medicine

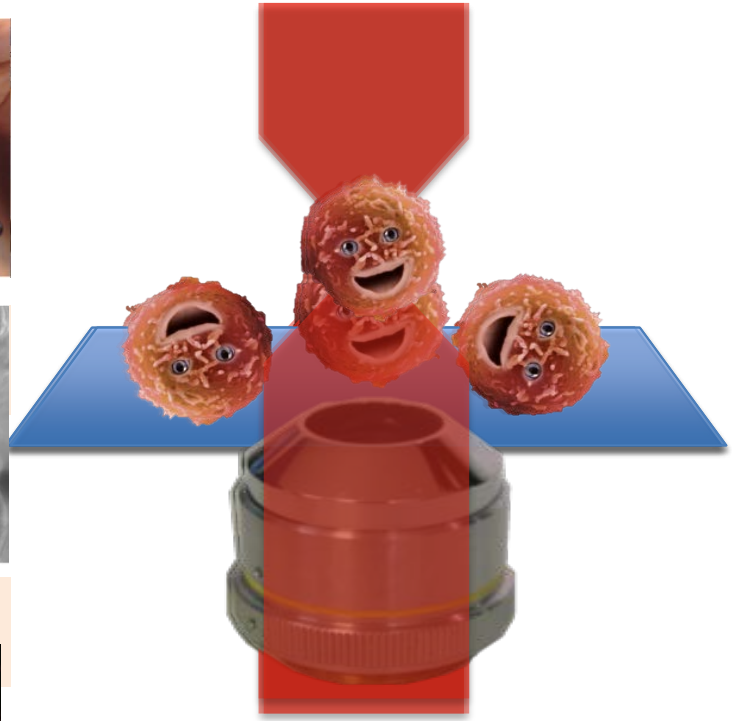
- Characterize stem cell populations in-line
- Detect and monitor cell differentiation
- Prove functionality of differentiated cell
- Depict cell composition in tissue products



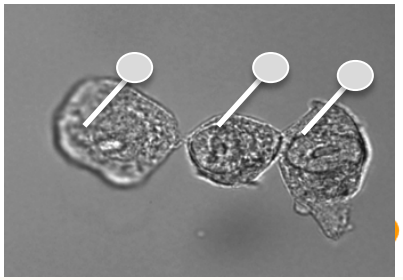
Innovative therapy is just a laser beam away
Tumor research & analysis

- Discriminate tumor from non-tumor cells
- Characterize tumor entities and staging
- Discover tumor subpopulations
- Screen for patient specific drugs





Trapping effect
for cell suspensions



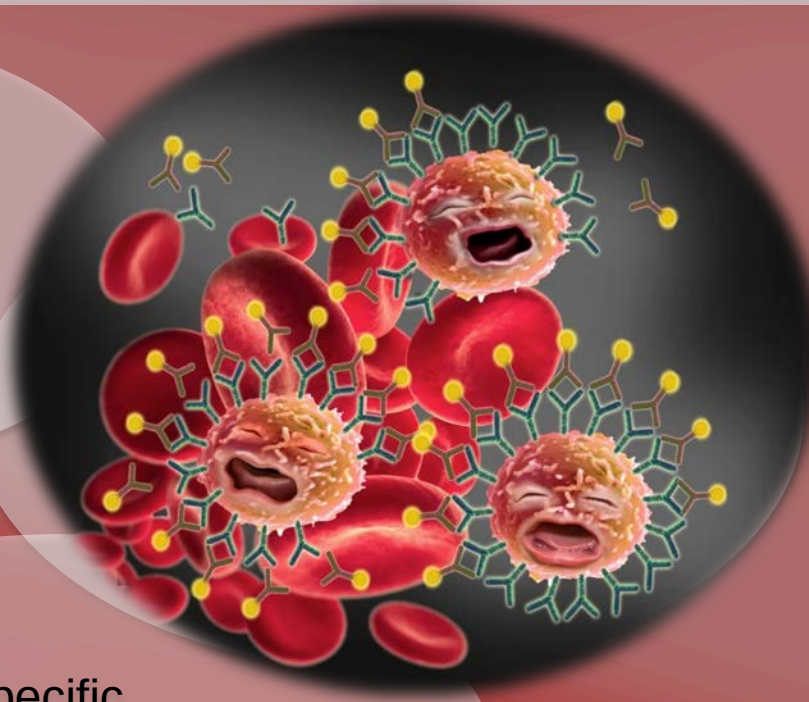
subcellular precision

BioRam® for label-free and non-invasive cell identification

Happy cells –
healthy people

Analysis

- label-free
- non-invasive
- Rapid



Precision

- highly specific
- sub-cellular resolution
- small sample amounts
- scalable

Visit our ServiceLab

- Test your samples
- Perform your project
- Order a Contract work

happycells@celltool.de

Who we are

- **We are GENILEM (www.genilem-suisse.ch)**
- We've just turned 20.
- We are a non-profit, volunteer organization with regional chapters across Switzerland.
- *We are dedicated to helping start-ups successfully enter the market.*
- Innovative companies meeting our strict selection criteria receive *a 3-year free-of-charge coaching*:
  - covering a broad range of topics
  - provided by experienced entrepreneurs

What we'd like to share with you

- We don't just coach start-ups in leading-edge technology (Life Sciences, Energy, IT…)
- We also love to coach companies *outside hi-tech* that innovate in the areas of marketing, sales or services.
- *We provide coaching only.* We don't invest. We have nothing to sell.
- Having said that – our nation-wide network can help start-ups access investors and professional services.
- What we'd like to share with you is our passion for successful enterprise creation. So please talk to us, mention us, challenge us.
- **www.genilem-suisse.ch**

GENILEM®

Who we are

Der Balgrist

Tumor Surgery & Laboratory for Orthopedic Research

- Clinical OS research
- *In vitro* and *in vivo* OS models
- Biobank
- Sarcoma Center

Zurich University of Applied Sciences

zh aw Life Sciences and Facility Management

Institute of Chemistry and Biological Chemistry

Cell Culture and Tissue Engineering

- 3D cell culture
- Applied OS research
- OS microtissue model development
- TEDD

Clinical research *in vitro* ⟷ **Applied research (Pre-)clinical research**

What we'd like to share with you

Development of reliable and robust 3D osteosarcoma microtissue models

- Personalized medicine
- Drug assessment

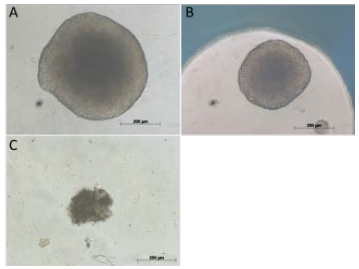
Standard treatment

Approx. 90 days

Biopsy → Diagnosis → Chemotherapy → Resection → Chemotherapy

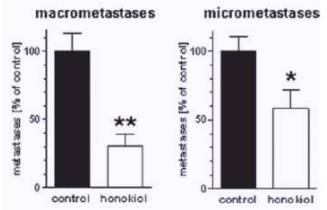
Future improved treatment

- **3D microtissues from biopsy**



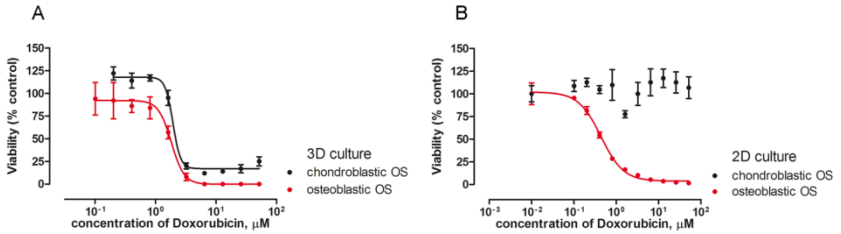
Reliable 3D cell culture platform

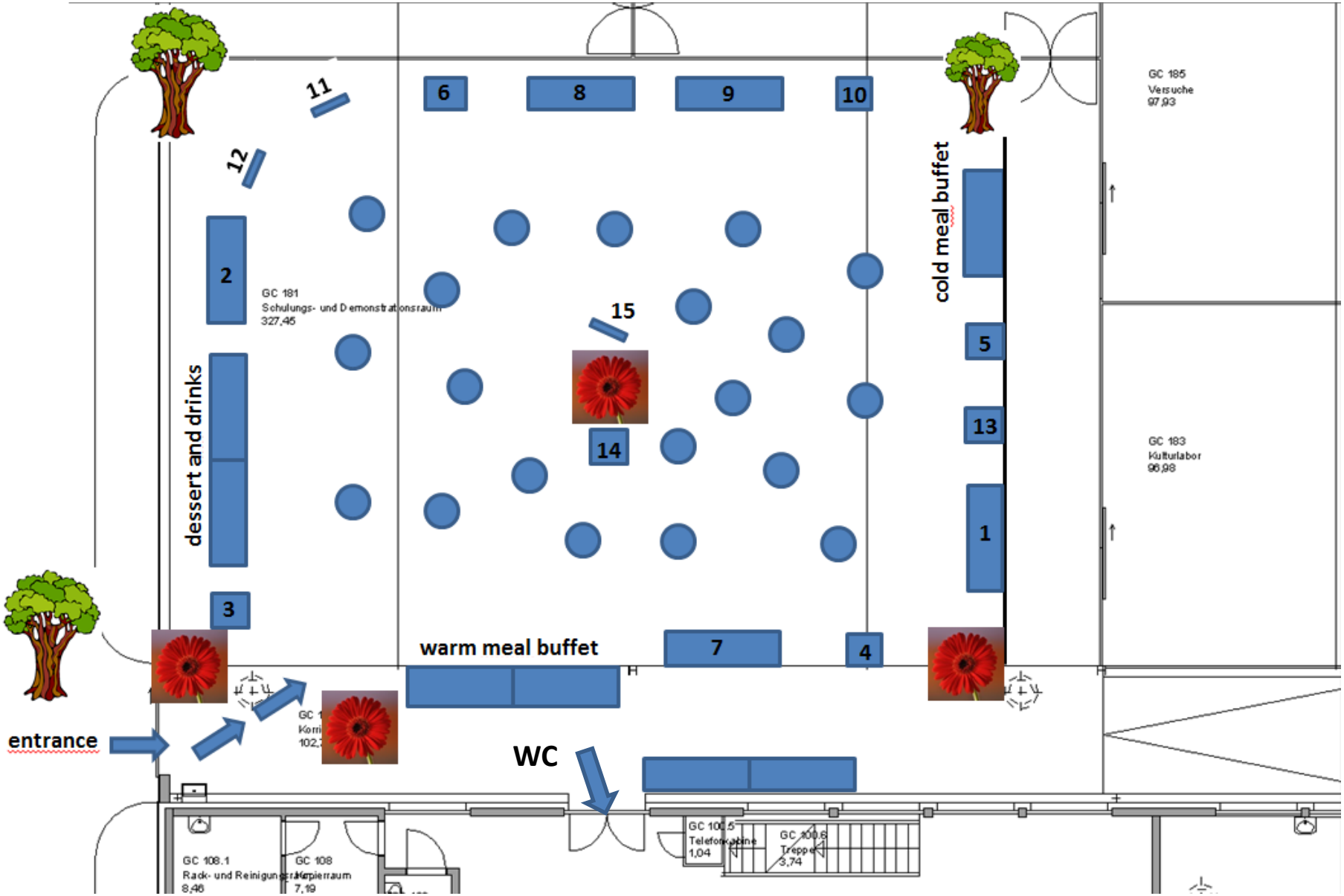
- **2D and *in vivo* data**
- **Gene expression data**



Drug sensitivity

Personalized treatment

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GC 181
Schulungs- und Demonstrationsraum
327,45
15
cold meal buffet
5
13
dessert and drinks
14
GC 185
Versuche
97,93
GC 183
Kulturlabor
96,98
1
3
warm meal buffet
7
4
entrance
WC
GC 108.1
Rack- und Reinigungsraum
8,46
GC 108
7,19
GC 100.5
Telefonkabine
1,04
GC 100.6
Treppe
3,74