

# RESEARCH PROJECT

 Institute  
Life Technologies

## Cell-based disease models, their use in industry

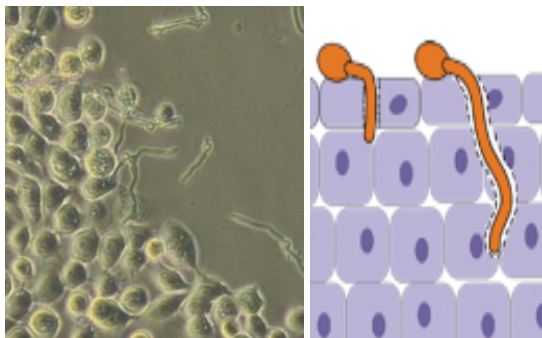
**Partners** Industrial partners, PhytoArk, Cimark

**Collaborators** R. Buchs, J.-M. Denis, A. Grogg & B. Schnyder

**Description** The ultimate objective of this cell-system is the replacement of lab animal experiments & improvement of the human test systems. The improved cellular bioassays serve here to identify **phyto-based therapies**. Such natural extracts serve as alternative therapy to the existing antibiotics mainly circumventing the emerging antibiotics resistances.

*Candida albicans* is the most common infection of *candidiasis* in humans. The infectious disease model in human cell cultures is composed of **i)** 2-dimensional (2D) adhesion of *Candida albicans* to the host's mucosal cell barrier, and the **ii)** filamentous infiltration by *C.albicans* in tissues (**in 3D cell systems**), and a comparison to the routine plankton-type growth of *C.albicans* in solution.

The investigated natural extract are provided from regional plants, then fractionated, characterized by mass spectrometry profiling and tested for anti-infectious activity in the three cell-system bioassays. In conclusion, the current project serves to identify the potential of new biotherapies using physiologically relevant 3D human cell systems.



Adhesion and filamentous **infiltration of *Candida albicans*** in human mucosal tissue cells. Host cell are presented by the cubical cells shown in the microscopy and scheme.

The establishing of novel **3D cell systems** is integrated in the Swiss TEDD (Tissue Engineering for Drug Development) competence center. Photo shows the speakers and organizers of the TEDD meeting in Sion, HES-SO Valais

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