



3D PRINTING TECHNOLOGIES FOR BIOTECHNOLOGY

3D printing technology

3D printing technology has become important the innovations, development and commercialization of various products in industry, medicine, chemical sciences, architecture etc. In biotechnology, 3D printing approaches are suited for example as additive manufacturing and rapid prototyping for development of microsystem and microfluidic devices for biomedical applications and also for building scaffolds for tissues and organs.

Our 3D printing technology

Currently, we have available two 3D printers. One is the basic printer (Prusa Research s.r.o.) which is using fused deposition modelling (FDM) method. Our second printer (EnvisionTEC GmbH) is professional printer, designed for real production, with digital light processing (DLP) technology and is ideal for manufacturing medium-sized, very precise components. Key features are:

Resolution is 1920 x 1200 pixel (with pixel size down to 0.022 mm)

Layer height is 0.015 - 0.150 mm

Build dimensions are 115 x 72 x 220 mm or 84 x 52.5 x 220 mm (two optical systems are available)

Print speed up to 25 mm in height per hour

Models can be built from more than 20 different materials.

Current printing activities

Till today, we applied 3D printing technology for development of:

Interfaces for microfluidic systems

Microchips for affinity-based cell capture and blood cells separations

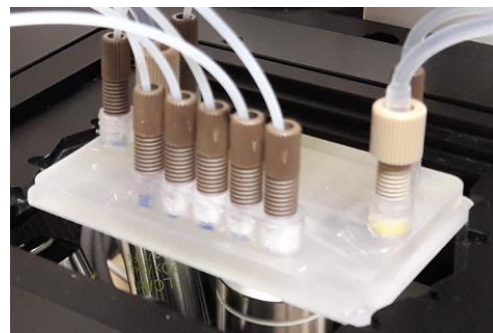
Cultivation microsystems for fish embryos and plant seeds

Toxicity testing devices

Support scaffolds for cells growth on biocompatible nanofibers

Laboratory aids such microscope holders, inserts for microscope stages, etc.

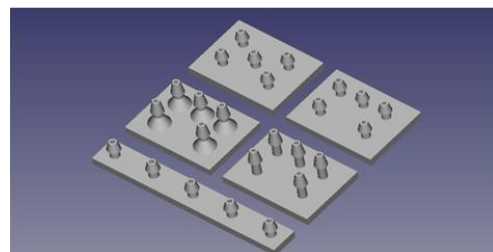
Mold masters for polymers casting and embossing.



Cultivation system for fish embryos



3D scaffold for cell tissue cultivation



Interfaces for microfluidic chips