

MSE 2024

24 - 26 Sep 2024 (Darmstadt)

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Topic B: Biomaterials

B03: Biofabrication and 3D-Bioprinting

Biofabrication is a key biomedical technology for growing living tissue. These can be used both as implants in the field of regenerative medicine and as miniaturized organ analogues in pharmaceutical research. Another emerging field is the use of biofabrication methods to manufacture products in the field of cellular agriculture, such as cultivated meat. In addition to cell colonization techniques of scaffolds and injection molding of hydrogel-cell formulations, additive manufacturing of tissues by 3D bioprinting takes a central role in biofabrication. Here, bioinks consisting of living cells embedded in hydrogels are applied layer by layer to build up a pre-defined 3D structure. Following the manufacturing step, the prepared tissue precursors undergo a post-fabrication maturation phase. During this time the cell-hydrogel structure mature into a compact living tissue that possess similar biological functionality comparable to the native counterpart.

The symposium will focus on presenting the latest findings in the field of biofabrication and 3D-bioprinting. Presentations on all relevant bio-manufacturing methods, such as cell seeding, molding and 3D-bioprinting, and novel bioink formulations are welcome. Special attention will be given to presentation that demonstrate application of the produced tissues in the clinical, pharmaceutical or food context. Furthermore, scientists and industrial partners that develop novel biofabrication methods or technologies that enable digitalization, process automation or scaling of biofabrication/bioprinting methods are invited. Finally yet importantly, fusion of microfluidics with printed cell entities in so called Organs-on-a-Chip as well as targeted manipulation of cell-biomaterial interfaces are topics of high interest for the session.

Symposium Organizer



Prof. Dr. Andreas Blaeser
Technische Universität Darmstadt

