

Editorial

Bioprinting:

Life made out of Printer

Vital tissue structures, in case of skin can be made already by additive manufacturing but with functioning organs it seems however otherwise still. Everything could be so simple – only switch on computer then as per choice heart, kidney or lung, press on button and final implantation – already a life should have been saved.

Many doctors dream of this scenario and still more patients. Alone in Germany about 10000 persons yearly wait for a biological alternative parts. Many wait in vain. In every eight hours one dies from this.

Whether the dream of functioning organ out of the printer ever be fulfilled is still open. On that the most recent success report from Israel is little. The researchers of the University of Tel Aviv became successful to develop a complete heart with cell tissue, blood vessels and ventricles in extrusion method.

The problem it does not pulsate reliably. The different cell types integrate namely only insufficient with one another. The transmission of electrical impulse comes regularly to stops.

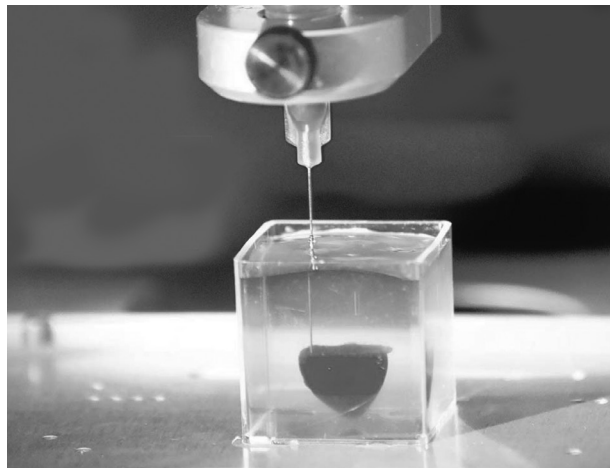
In addition the heart has finally the shape of a church very small to hold a human circulation of vitality. It becomes simply bigger. Then the more bulky the aimed structure, the more difficult it becomes to reach in all areas with superfine vital blood vessels. Additionally the printing time rises with growing volume and the number of exact positioning cell arts.

In course of the upper part being still printed then the lower parts already die down.

However it gives hope in any case, however, the printing speed through the medium of projection stereo lithography gets higher. The Berlin cell

bricks GmbH works on that.

The printing precision could be improved with the LIFT (Laser Induced Forward Transfer) system. It allows living cells with a high selection laser ray at the expected position. The Fraunhofer Institute for Laser Technique (ILT). It is a pity both the methods are as per present technique is scarcely to be combined.



Israel developed a complete heart with cell tissue, blood vessels and ventricles in extrusion method.

Anil Kumar Ghosh

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Von B Reckter und S Asche