

New Dimensions in 3D Cell Culture

The German company **Zellwerk GmbH** has opened up new dimensions in biotechnology. The innovative **Z[®] RP bioreactor system** is the first complete platform for fast, safe and economical 3D cell culturing and tissue engineering on a commercial scale.

“Cell culture is the central method of bio-sciences and biotechnology,” explains our interview partner, Professor Dr. Hans Hoffmeister, Managing Director of Zellwerk GmbH. *“When it comes to complex glycoproteins, bioreactors are needed for cell growth. However, there are only a*

Zellwerk. Up to now, the carriers were the major problem. The material and the surface of the carriers play a key role for cell growth. Cells grow best in a natural environment; growing them on conventional monolayer glass or plastic materials is unnatural for cells.

nology, for example for dental application, the three group members are headquartered in the same location and benefit from manifold synergetic effects. It was a natural consequence that ceramic material was the first alternative carrier material to be tested by Zellwerk.



The unique Zellwerk bioreactor technology makes 3D cell culturing and tissue engineering fast, safe and economical

few bioreactors for 3D cell culture in use today, and they all operate on an experimental scale. With our new RP bioreactor system, we have created the first viable tool for all fields of 3D cell culturing and tissue engineering in research, medicine and pharmaceutical production.” It is the innovative approach that makes the difference with

In a bid to find a viable alternative, Zellwerk used its expert know-how in ceramics. Founded in 1997, Zellwerk is a spin off from HiPer Ceramics GmbH, a specialist in technical ceramics for industrial applications. Along with the parent company, HiPer Technologies AG, another spin off specialised in ceramics for medical tech-

“We found that cells show excellent growth on ceramic surfaces,” says our interview partner. *“We had the know-how to further develop the material.”* Intense research resulted in macroporous Sponceram[®] cell carriers, which are ideally suited for culturing adherent cells. Growing in high density, the cells form three-dimensional cell layers

embedded in their own cell-specific extra-cellular matrix. Featuring properties that are similar to natural properties, they remain vital and productive for months.

Along with the development of the bioreactor came another milestone: the rotating bed for supporting cell growth. The system also includes the GMP Breeder, an innovative supply system providing a sterile, temperature-controlled environment to pro-

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tect the bioreactor from contamination. *“Our system consists of self-contained clean room devices that fully comply with GLP, GCP, GTP, and GMP standards,”* underlines our interview partner. *“The Z[®] RP bioreactor is the first complete cell culturing platform combining flexible cell or tissue hosting, clean room environment, high end process control and documentation in one system.”* Designed for fast, safe and economical processes, the system enables the expansion and harvesting of primary cells and stem cells, tissue engineering, production of complete implants made from colonized scaffolds, or the cost-efficient production of recombinant biopharmaceuticals, vaccines, vectors etc.

The 20 experienced specialists at Zellwerk also make their know-how as well as their modern facilities available to customers. *"We provide expert services for the customers, ranging from experimental glycoprotein products manufactured on a pilot scale through to bulk API glycoprotein substances complying with cGMP-standards on a commercial scale,"*

explains our interview partner.

Zellwerk's products and services are also well known beyond the German borders. *"We export products around the world,"* reports our interview partner. Regular participation at exhibitions and conferences further spreads the awareness and the reputation of the cell culture experts.

The growing trend to use adult stem cells for therapy is a sound basis for future growth, as Zellwerk is the only company worldwide that is able to provide the advanced technology and

the viable system for the process.



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