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Avatar System™

Reproducing Life Through Revolutionary Capabilities

Your biological samples are precious and unique. They also require real-life conditions to thrive and generate meaningful results. The Avatar System is the first commercially available cell culture system capable of reproducing the diverse range of *in vivo* microenvironments found within the human body.

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info@xcellbio.com
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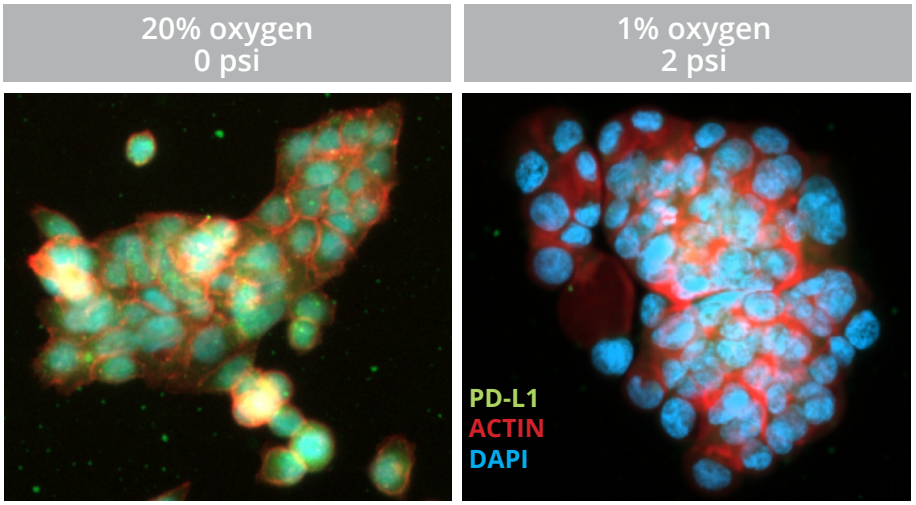
Biologically relevant results

By reproducing physiological conditions, the Avatar System cultures cell samples in the most suitable environment to deliver biologically relevant results. Avatar System regulates O_2, CO_2, pressure, and temperature to recreate the native in vivo conditions in which the sample was derived. These revolutionary capabilities enable the culturing of difficult to grow patient samples, from stem cells to tumor cells.

The Avatar System Can Mimic the Oxygen and Pressure Levels of Human Tissues

	Tumor	Lung	Brain
Pressure	3.0 PSI	1.0 PSI	2.0 PSI
O2	0.1 %	5 %	3 %
CO2	5 %	5 %	5 %
Temperature	37 °C	37 °C	37 °C



Pancreatic cancer cell lines (PANC10) cultured under conditions mimicking the metastatic niche (low oxygen and high pressure) decreases the expression of immunotherapeutic target PD-L1 (green, right image).

Could this observation predict resistance to immunotherapy in advanced metastatic disease for pancreatic cancer?

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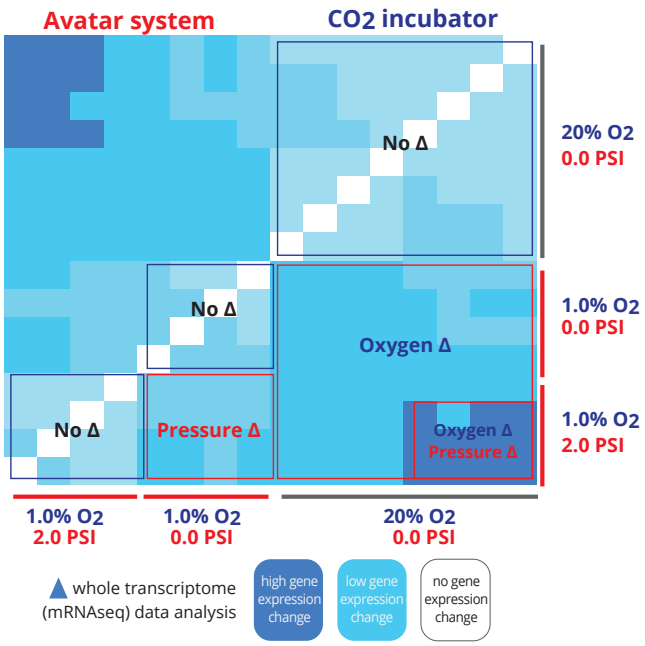
See the difference

Unlike traditional incubators and hypoxia chambers, the Avatar System controls both hypoxia and pressure, while providing chemically-defined, xeno-free culture media to maintain a variety of primary cell types. Samples maintained under these customized conditions exhibit near-native morphology and gene expression profiles, making the results from cultured samples biologically meaningful.

Prostate cancer cell lines (PC-3 and LNCaP) cultured under physiologically-relevant oxygen and pressure levels lead to different gene expression signatures when compared to traditional culturing methods



Design and Performance

Scalable design with a small footprint

The small footprint and stackable/modular design of the Avatar System enable labs to take advantage of the technology by scaling with additional systems as their needs increase, without the need for extra bench space.

Low operating costs and energy efficient

The system is designed with efficiency in mind, consuming 90% less gas than standard hypoxic incubators to lower operating costs and overhead.

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Avatar Bioreactor Performance Benchmarks

	MIN	MAX	System reproducibility	Multisystem reproducibility
Pressure	0.0 PSI	5.0 PSI	± 5 %	± 6 %
Temperature	25 °C	45 °C	± 5 %	± 6 %
Humidity	0.0 %	99 %	± 5 %	± 6 %
O_2	0.1 %	20 %	± 5 %	± 6 %
CO_2	0.1 %	20 %	± 5 %	± 6 %

High accuracy and fast response time

The system delivers a new level of accuracy and response: all conditions are precisely regulated, and it takes less than 15 minutes for the system to reach desired set-points. Its accuracy and reproducibility allow users to compare experiments across multiple samples and platforms with no technical variation.

Simple interface with real-time monitoring

Complete control over pressure, temperature, gas mixture, and humidity in a simple, push-button interface.

Copper based design to reduce contamination risk

The Avatar System's copper-plated chamber inhibits microbial growth and minimizes risk of contamination.

Next generation primary cell culturing platform

The Avatar System, along with its proprietary culture media and substrates, closely mimics the range of microenvironments found within the body. By regulating pressure, oxygen, and temperature, the Avatar System can maintain the original morphology and molecular profiles of human cells, producing meaningful scientific insights that are not possible through traditional methods.

Specifications

WEIGHT: 63 lbs (28.6 kg)

SIZE (W x D x H): 13.5" x 13.1" x 12.0" (34.3 x 33.3 x 30.5 cm)

CHAMBER CAPACITY: 224 cu in. / 3.7 L

POWER: 100-240 V AC, 50/60Hz, 2 Amps

GAS REQUIREMENTS: In-line 25 psi N2, 25 psi CO_2

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