

Advanced in vitro exposure systems



VITROCELL® Cloud α TRIO

For exposure of 12- and 24-well sized cell culture inserts in three separated compartments: Testing of up to three dose ranges or three different substances in one experiment.

The VITROCELL® Cloud Alpha TRIO presents another innovative leap forward in the exposure of cell cultures. This versatile device enables the acquisition of three dose relationships in a single experiment or facilitates working with three different substances simultaneously. The latter procedure is particularly interesting for users which need to test and compare larger numbers of different substances.

The development is based on the well-known and frequently published VITROCELL® Cloud formats.



Higher Throughput

3 doses @ 4 replicates
3 substances @ 4 replicates

Cloud Alpha TRIO
with three separated
compartments

Developed with a focus on versatility

The new Cloud Alpha TRIO is capable to expose mammalian cell cultures in 12- and 24-well sized inserts.

The Cloud system is suitable for nebulization of solutions and suspensions. Fields of application are screening of inhalable drugs, assessing the toxicity of inhaled substances like chemicals or nanoparticles, and conducting research on viruses.

Choice of three types of nebulizers

It comes with a choice of three types of vibrating mesh nebulizers having droplet MMAD ranges of 2.5–6.0 μm , 2.5–4.0 μm , 4.0–6.0 μm , and in an advanced version with 9.0–12.0 μm .

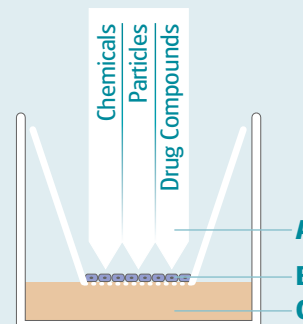
The device is particularly suitable for testing whenever limited quantities of testing materials are available.

Exposure at the Air/Liquid Interface

All VITROCELL® Cloud Alpha exposure devices have been specifically designed to enable direct exposure of mammalian cells or tissue at the Air/Liquid Interface under physiologically relevant conditions. Here the cell cultures are not covered with media as opposed to submerged conditions which cause an undesired interaction of the formerly airborne substances with the culture media.

Air/Liquid Cultivation and Exposure in Exposure Module

- A** Direct and controlled exposure of test atmosphere to cells
- B** Cells on membrane
- C** Media below cells



This approach allows for more credible and authentic results compared to submerged exposure due to a closer replication of human physiology.

12-well: Three individual doses or three different substances.

Exposure of 12-well sized culture inserts in three rows at four replicates.

24-well: Three individual doses or three different substances.

Exposure of 24-well sized culture inserts in three rows at four replicates.



Both 12-well and 24-well inserts can be used with special adapters.

Dosimetry using Quartz Crystal Microbalances (QCM)

The sQCM 12 sensor can be fitted in all rows of the Cloud Alpha TRIO exposure module.

It is capable of measuring the deposited mass in nanogram/cm². Results are recorded in the VITROCELL® Monitor Software. Data is presented in graphs and stored in MS Excel®.



The sQCM 12 sensor (left) can be fitted in all rows of the Cloud Alpha TRIO exposure module (right).

Key Features:

- Suitable for nebulization of solutions and suspensions
- Row-by-row exposure of 12- and 24- well sized cell culture inserts
- Exposure of three different dose ranges in one experiment or of three different substances in one experiment
- Optionally, up to three sQCM 12 microbalances can be connected to one controller
- Heating system
- Optional PowerVent function: evacuation of residual aerosols via vacuum pump
- Designed for screening of inhaled drugs, toxicity testing of inhaled substances such as chemicals or nanoparticles and virus research

About VITROCELL®

VITROCELL® exclusively concentrates on the developing, producing, installing, training and servicing of advanced *in vitro* exposure systems.

The VITROCELL® Systems' team is driven by their vision for new in-vitro standards through state-of-the-art technology, highly qualified workmanship and absolute client dedication. VITROCELL® has successfully collaborated with clients from leading research institutes, contract research organizations, regulatory authorities or industrial laboratories across the world. Working with our team experts, all modules have been tailored to create durable and complete turnkey-systems for *in vitro* inhalation toxicology. Gases, environmental atmospheres, nano particles and complex mixtures are analyzed on lung cells at the air/liquid interface using these systems. VITROCELL® technologies are also applicable to solutions for skin research.

Over a decade of devotion to research in this specific field has given our team of design & precision manufacturing specialists the opportunity to mentor highly diversified and complex projects from conception to completion. We strive to become a constructive member of each research team, providing support when it is needed, advice when it is required and modules of the highest quality, which are even polished by hand before leaving here to be integrated into your workspace. Every piece of our German engineered equipment is manufactured to the highest of standards – yours.

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