

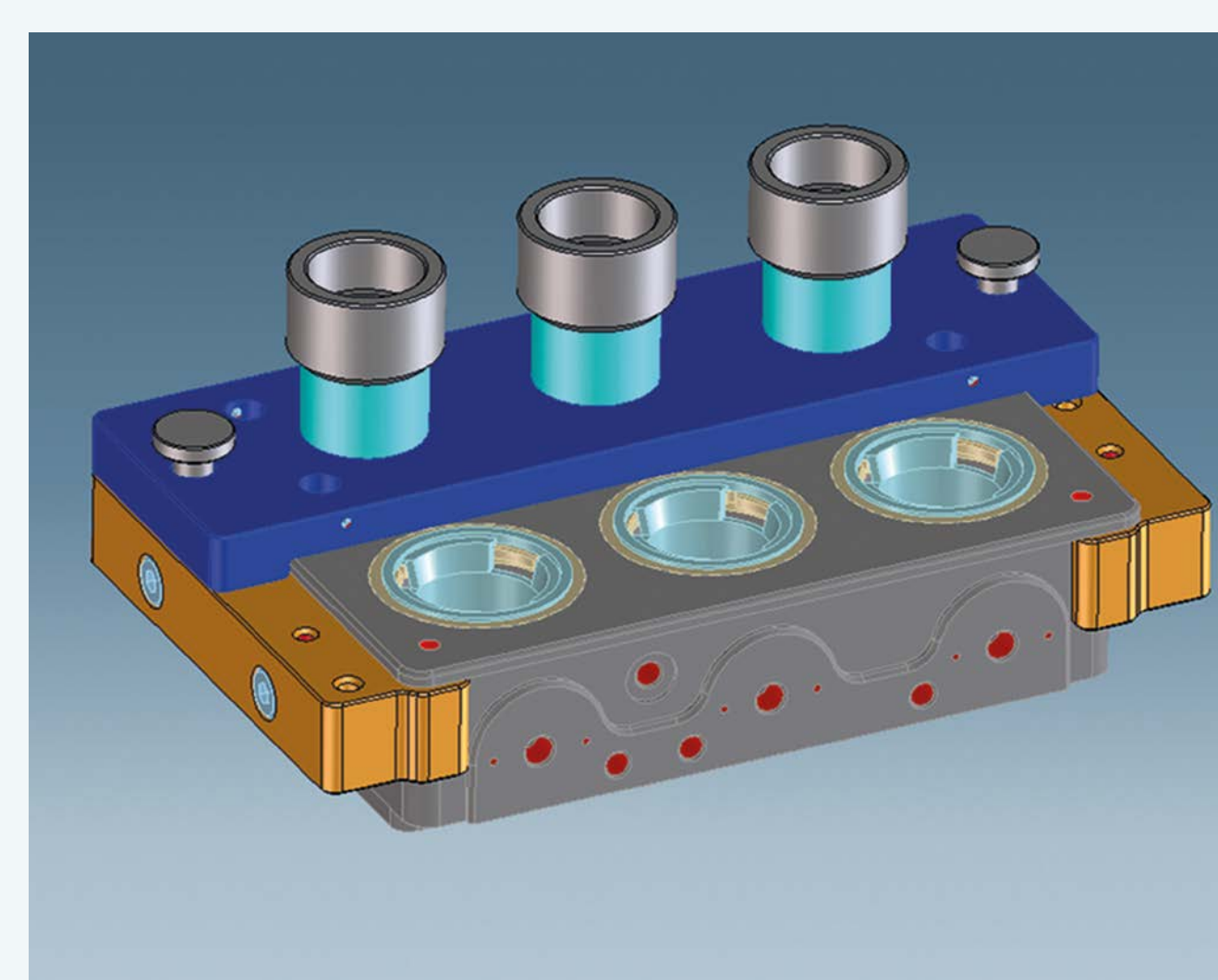
# VITROCELL® Cloud MAX

Patrick Weindl, VITROCELL Systems GmbH, 79183 Waldkirch, Germany  
 Dr. Otmar Schmid, Helmholtz Center Munich, Germany

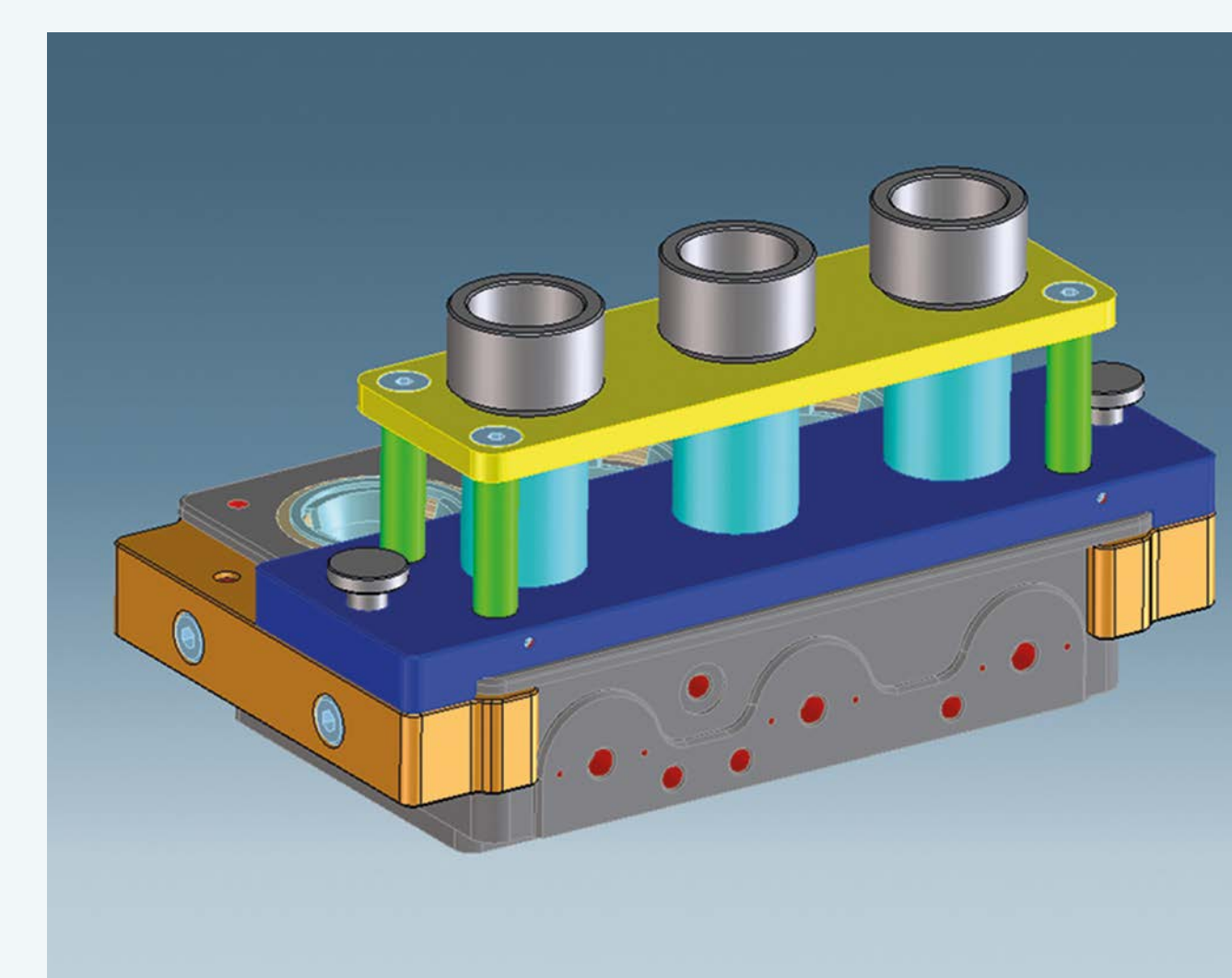
## Design for smallest nebulization volumes and high deposition efficiency

Addressing the need for lower nebulization volumes but very high deposition while using costly materials, the VITROCELL® Cloud MAX is one of the most recent evolutions within the Cloud device family. Expensive test substances for liquid aerosols require these measures, with VITROCELL® offering a different approach on the renowned, patented Cloud principle. The final device enhances and refines details from the prototype, making it an already well investigated system as it is about to enter the market.

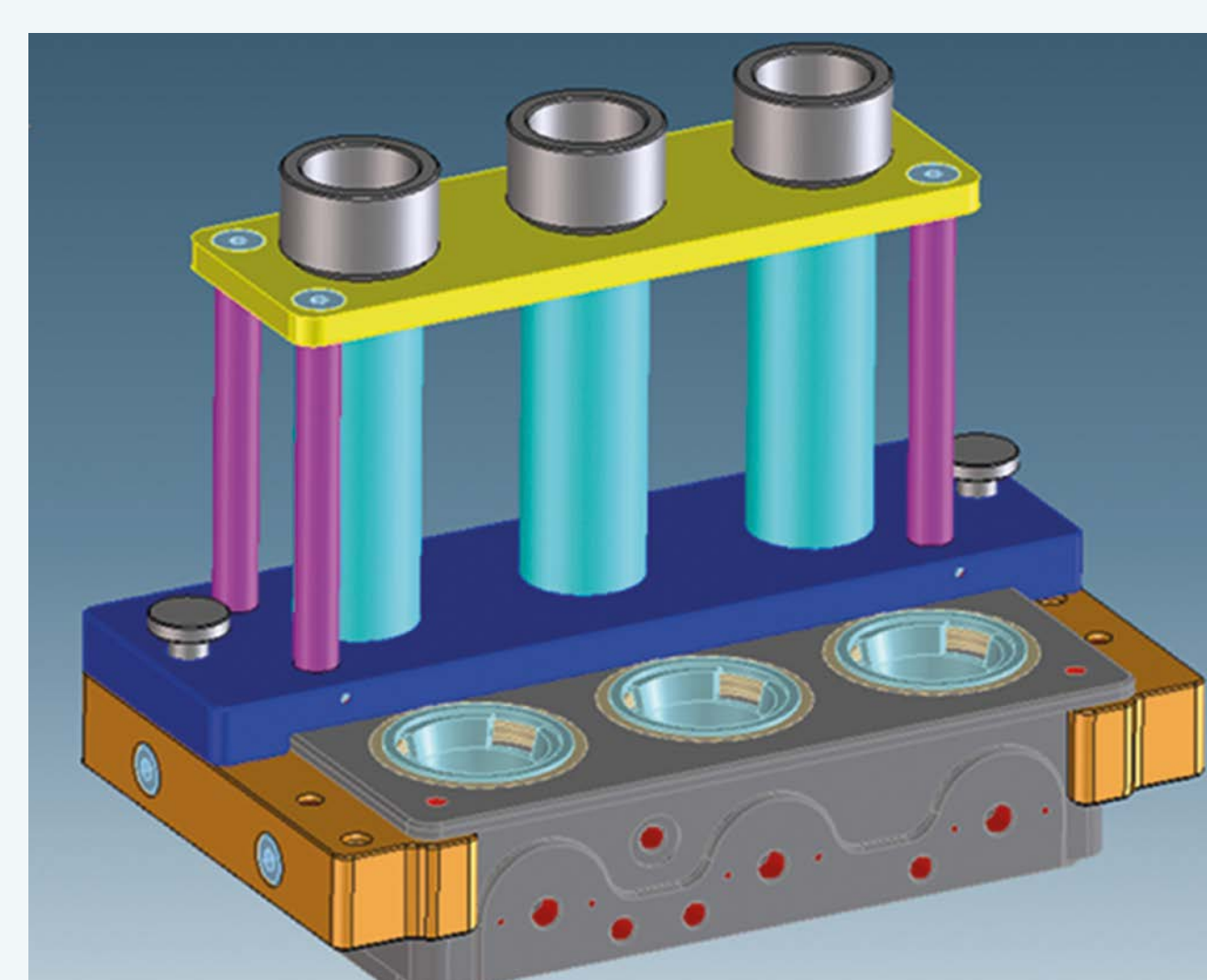
As shown on the pictures, the adapter for the VITROCELL® Cloud Max system may be slid over the 6-well sized base module to expose every insert. While it offers almost the same throughput as the VITROCELL® Cloud 6 (nebulization time is shorter, as of a smaller volume), it reduces the cloud-filled volume dramatically. By already closely investigated single droplet sedimentation, the whole substance delivered in an exposure per well reaches the insert on the lower end. Various offered tube lengths (25 mm, 45 mm, 85 mm) may optimize each individual user's results.



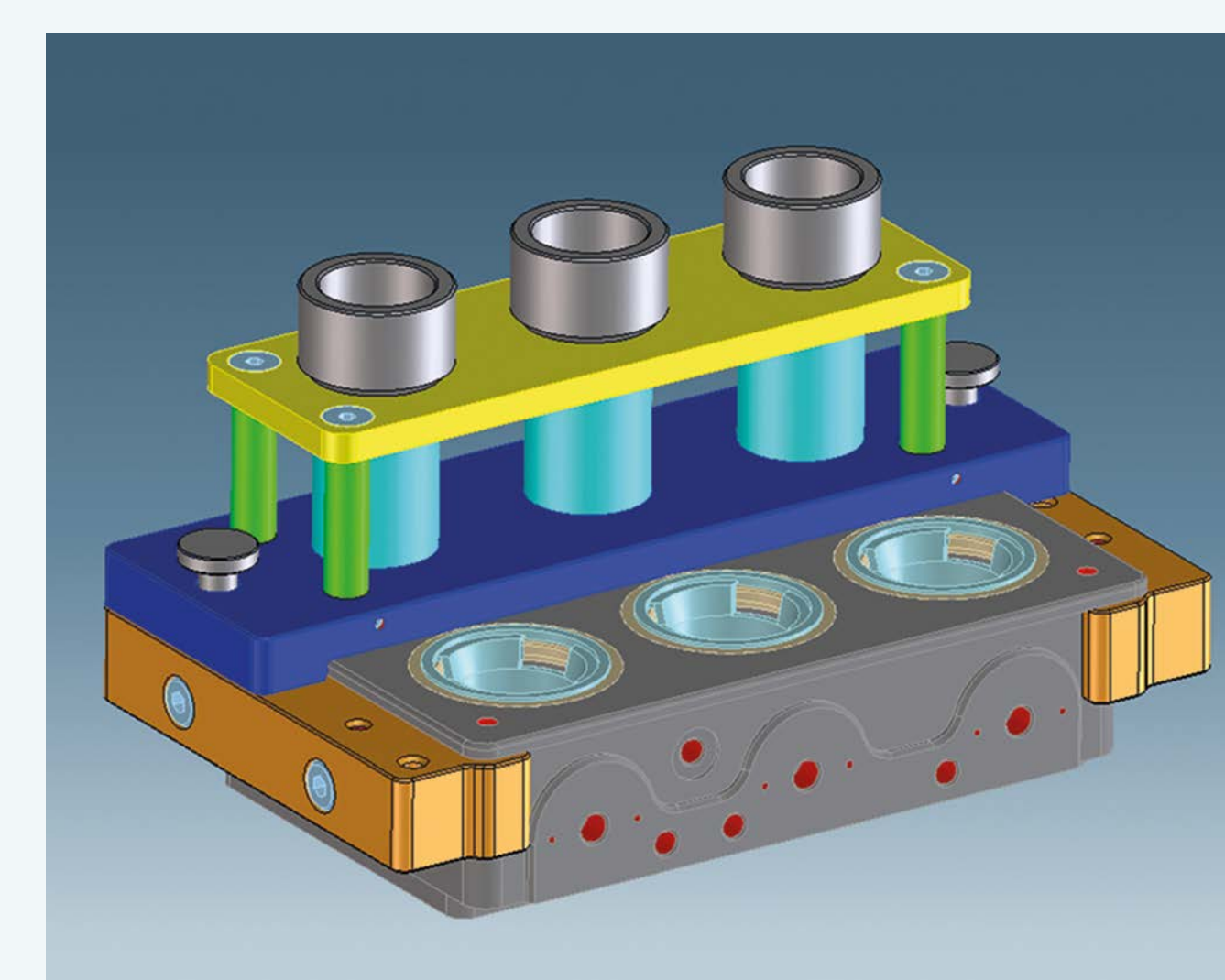
VC Cloud MAX Design in Version L1 with 25 mm tubes



VC Cloud MAX Design in Version L2 with 45 mm tubes in configuration 1



VC Cloud MAX Design in Version L3 with 85 mm tubes



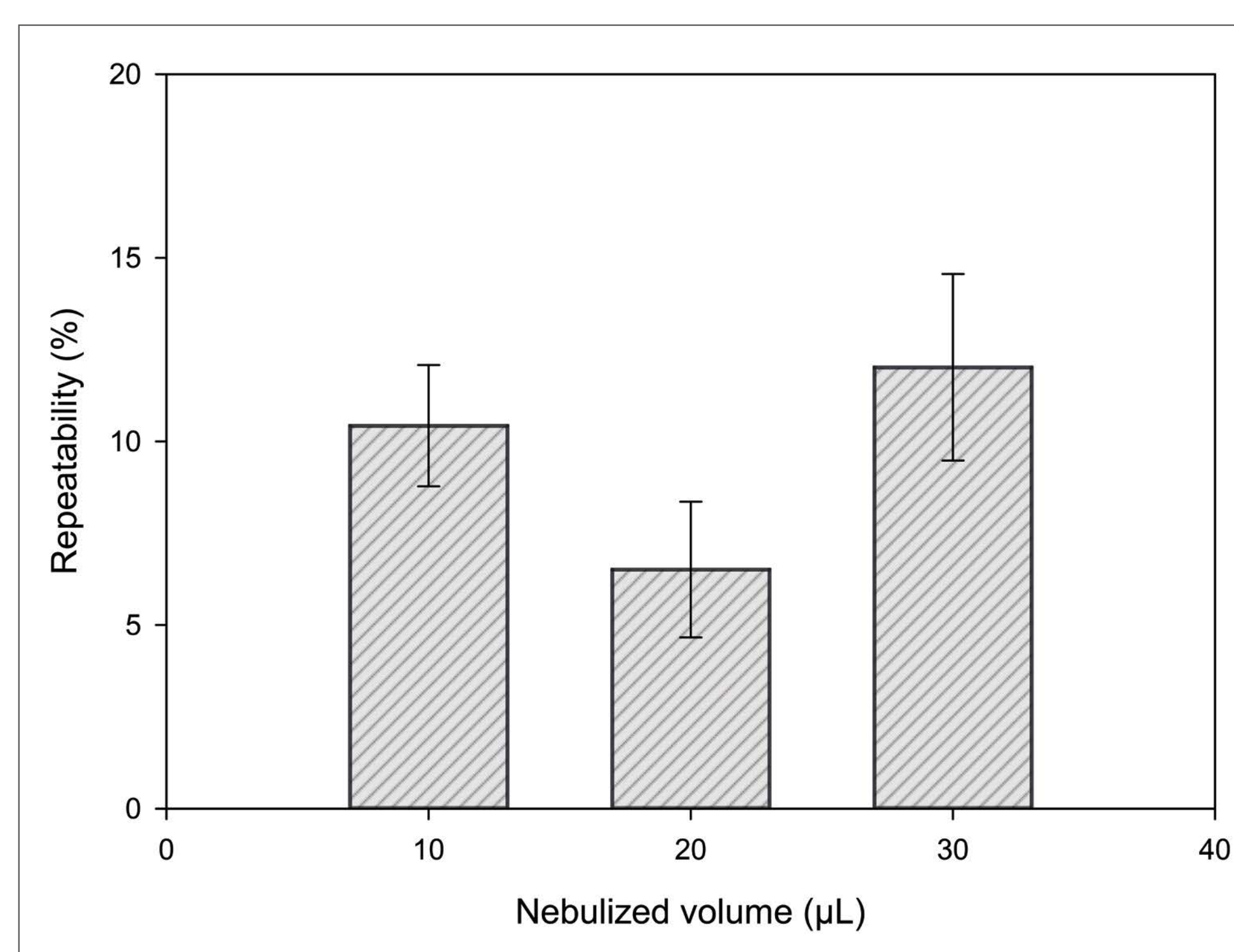
VC Cloud MAX Design in Version L2 with 45 mm tubes in configuration 2

## Features and data acquired with prototype designs

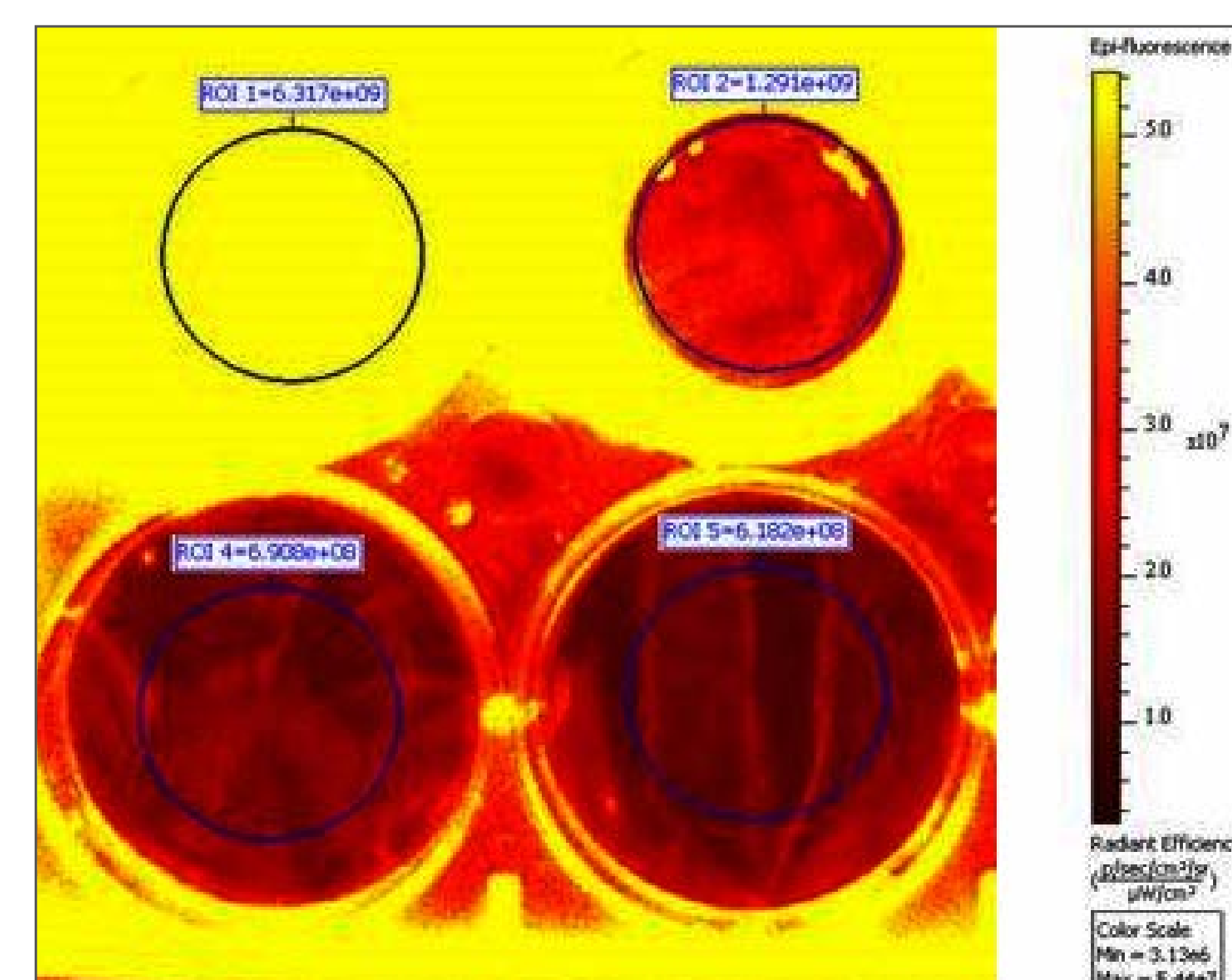
Following the principle of the other VITROCELL® Cloud devices, meaning a highly reproducible process by Cloud dynamics, easy and simple usage of the complete system (exposure parts and vibrating mesh nebulizer) and availability for ALI cell-cultures, the VITROCELL® Cloud MAX focusses on new features.

### VITROCELL® Cloud MAX features:

- Lower nebulization volumes (lower than 30  $\mu\text{L}$  per exposure and well)
- Deposition efficiencies up to 100%
- Cloud dynamics by substance-safe vibrating mesh nebulizers
- Easy handling with no external air-flow required
- Close to no variations between exposed inserts/high reproducibility
- Air Liquid Interface (ALI) cell cultures
- Direct guidance of substance-containing cloud to the cells



Repeatability at various nebulized volumes with 40 mm prototype tubes measured with Fluorescein-Sodium Salt and 6 repetitions (Error Bars represent 1 SEM); Preliminary data measured at Helmholtz Center Munich by Dr. Otmar Schmid



Difference between pipetted (upper left), nebulized (upper right) and no substance on 6-well inserts measured with 15  $\mu\text{g}/\text{mL}$  Skyblue in IVIS Imaging System; Preliminary data measured at Helmholtz Center Munich by Dr. Otmar Schmid