Organ on a Chip

Advancing New Approach Methodologies

Overview

There is increasing demand for the development and evaluation of alternatives to animal models for toxicology testing and drug development. Compared to traditional approaches, new approach methodologies (i.e., in vitro, and computational models) have the potential to increase speed, reduce cost, and increase the accuracy of toxicity evaluation and drug development efforts.

MOLECULAR | ORGANELLE | CELLULAR | TISSUE | ORGAN | ORGANISM

Predictive Inhalation Biology

Inhalation is an important route of exposure for chemicals and pathogens and a potential route of administration for many drugs. The human respiratory system is a heterogeneous system with distinct differences in its biology and architecture compared to laboratory animal species. Predicting the effects of inhaled materials is further complicated by the technical challenges associated with the administration of chemicals and/or pathogens as vapors or aerosols. Taken together, the complex nature of the respiratory system and inherent difficulty of performing controlled vapor/aerosol exposures present significant challenges for the accurate prediction of the effects of inhaled pathogens and materials on human health

Battelle pushes the boundaries of innovation to help organizations navigate the complex and costly process of bringing products to market. We have drawn on our extensive experience in the fields of inhalation science, cell-based assays, and computational biology to implement in vitro and computational models for the prediction of inhaled materials and pathogens on human health.

Air-Liquid Interface Exposure System

- 3D respiratory cell culture models, including lung on a chip
- High throughput, long exposure durations using VITROCELL 24/48 and 48 plus exposure systems
- Suitable for a variety of test materials, including complex mixtures, chemicals, and pathogens
- Continuous flow of test atmosphere over the cells grown at the air-liquid interface
- Real time characterization of exposure atmosphere for accurate dose measurements

Our Vision: Analyze and integrate data from different layers of biological organization and build fit for purpose end-to-end predictive models

800.201.2011 | solutions@battelle.org | www.battelle.org

ID 831 10/22

BATTELLE
It can be done