

Title: Air liquid interface exposure approaches for environmental pollutants and engineered Nanoparticles

Abstract:

Exposure of *in vitro* models to environmental or engineered micro and nano particles is a critical step for providing toxicological information relevant to human health.

During the last years several approaches have been developed to approach the issue of mimicking the actual interaction between lung epithelial cells and airborne compounds. Lot of effort has been dedicated to developing *in vitro* models that may be more representative of the actual cellular types that comprise the different portions of the respiratory tree, from nose to the alveoli. More recently, however, researchers have started to address a pivotal question that is the possibility of exposing *in vitro* models directly at the air liquid-interface (ALI). For this issue dedicated instrumentation has been developed and commercialized. The development of these new applications is a fundamental part of the new approach methodologies (NAMs) revolution.

The different ALI exposure model available are here presented together with some applications to different airborne pollutants. Results obtained at the ALI are compared with classical submerged approaches showing the differences between them. Final the possible actual limitations in the use of the ALI exposure modules are listed.