innovations

from the University of Vermont

TITLE: ELECTROSTATIC PARTICLE EXPOSURE SYSTEM

INVENTORS: Giuseppi Petrucci

DESCRIPTION: A system has been developed to quantitatively, accurately, and reproducibly expose cell cultures to controlled masses and/or numbers of aerosol particles. The particles may be deposited either in a mono- (i.e., single diameter) or polydisperse (multiple diamteres) fashion. The nominal operating range of particle sizes (diameters) for the existing configuration is ~30 – 900 nm, although operation may be extended to micrometer sized particles readily. The invention consists of an exposure chamber housing a conducting pedestal for the cell culture dish, an electrostatic cage, and flow controls. In addition there is a particle charging instrument on the front end and a particle counter on the back end. The invention deposits all particles of a selected diameter between 10 nm and 900 nm with one hundred percent efficiency. The system does not disturb the cell culture in any way. Mutiple cell cultures can be exposed simultaneously. It can also be used to expose cells to both gases and aerosol particles simultaneously.

ADVANTAGES: There exists no accepted commercial method for the exposure of cell cultures to aerosol particles. As such, the invention is a major advancement for the fields of environmental pathology, pollution toxicity, environmental monitoring, air quality, and emission controls. It is unique in its capability to accurately expose cell cultures to aerosol particles in a reproducible fashion. This is done without causing any measurable damage to the cells.

PATENT STATUS: Patent pending

LICENSING STATUS: Worldwide rights available

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