Project Title: Study of the impact of dry powder insufflation over respiratory epithelial cells

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Summary:
Lung delivery has gained increased popularity in recent years as an effective therapeutic alternative. Many carriers have been designed for inhalation, mostly dry powders. Nevertheless, their assessment frequently finds limitations related with inappropriate simulation of the lung environment, as occurs in cell-based studies, mainly because there is no device specifically designed to enable powder delivery onto cell surfaces under culture. This PhD project proposes the development of a research tool, an insufflator that enables dry powder deposition onto respiratory epithelial cells, as happens in vivo upon inhalation of dry powder aerosols. The impact of insufflation on cell cultures will thus be studied in proper environment, regarding biocompatibility, inflammatory response and cell stress. The device will provide considerable progress on pulmonary drug delivery research, potentiating the reliability of in vitro assays in substitution of in vivo experiments.

Bibliographic references:

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