Title: Harmful effects of cigarette smoke on a respiratory epithelium line (Calu 3): Prevention by N-acetylcisteine

Dr. Andrea 25187 Dugour figuejuan@gmail.com ¹, Dr. Fernanda 25188 Elías figuejuan@gmail.com ² and Dr. Juan 25189 Figueroa figuejuan@gmail.com MD ³. ¹ CIRES, Fundación P.Cassará, Buenos Aires, Argentina, 1085.

Body: Background: Calu 3 is a respiratory epithelial cell line increasingly used in pharmacological and pathophysiological studies. Much of lung damage produced by cigarette smoke is based on oxidative stress. N-acetylcisteine (NAC) has powerful antioxidant activity. Objectives: to evaluate if N-acetylcisteine can modify the effects of mainstream cigarette smoke on Calu 3 cells. Methods: Calu 3 cells were cultured in monolayers in air-liquid interphase. In an experimental group NAC (5 mM) was added to the culture media; a second group stay as control. Smoke was generated placing successively 2 cigarettes at a tube connected to a vacuum pump; the generated smoke was expelled by another tube to a closer chamber where the two groups of cells remained for 10 minutes. Then the cells were kept without smoke for two hours and cell viability (colorimetric method) and apoptosis (acridine orange fluorescence) were evaluated. Results: in the control group cell viability decrease 40% after the contact with cigarette smoke, and this was associated with the appearance of apoptotic cells. In the group treated with NAC the viability do not decrease and apoptotic cells were not observed. Conclusions: incubation with NAC prevented cigarette smoke damage in Calu 3 cells.