

P016 S-Nitrosogluthathione Reductase Expression in Human Lung Epithelial Cells

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Background: An increased pulmonary metabolism of the physiological bronchodilator, S-nitrosogluthathione (GSNO), by GSNO reductase (GSNOR) has been postulated to exacerbate airway hyperresponsiveness in asthmatics. However, no studies have been published reporting the exact localisation of GSNOR or GSNOR expression levels in the human lung.

Aim: The aim of this study was to determine whether GSNOR was present in the human alveolar cell line, A549, and if so whether its expression could be altered in response to conditions that mimic asthmatic inflammation or treatment.

Methods: An indirect ELISA assay was developed to quantify GSNOR levels in A549 cells. Cells were incubated 24 h with a) untreated medium, b) 5-100 ng/mL IL-13 or c) 5-100 μ M dexamethasone in medium before lysis and subsequent ELISA quantification.

Results: GSNOR was detected in untreated A549 cells (2.79 \pm 0.95 ng/100 μ g total protein). GSNOR expression after IL-13 treatment increased in a dose-dependent manner (significantly at 50 and 100 ng/mL). Dexamethasone treatment led to a dose-dependent decrease in expression (significantly at 50 and 100 μ M).

Conclusions: GSNOR is present in A549 cells and shows upregulation in response to an inflammatory cytokine linked with asthmatic inflammation. Conversely, expression may be downregulated in the presence of high corticosteroid concentrations.