INTRODUCTION AND OBJECTIVES: The most common factor associated with the development of chronic obstructive pulmonary disease (COPD) is smoking. The alveolar surfactant, which composition consists of a unique and complex mixture of lipids and proteins, has immunomodulatory action on lymphocytes and increases the activity of alveolar macrophages in experimental models of lung injury. This work aims to analyze the effects of surfactant on pulmonary inflammatory response in mice exposed to cigarette smoke (CS).

MATERIALS AND METHODS: Twenty-four mice C57BL/6 were divided into four groups: control group exposed to ambient air (CG); The surfactant treated group (STG); Group exposed to CS (GES) and Group exposed to CS and treated with surfactant (GESTS). For five days, the GES and GESTS were exposed to a total of 12 commercial cigarettes per day and the treated groups – GTS and GEFTS – received the surfactant by intranasal instillation in doses of 2.0 ml/kg/day. At the end of the exposure the animals were euthanatized for the collection of bronchoalveolar lavage (BAL), blood and lungs for biochemical analyses.

RESULTS AND CONCLUSIONS: The total number of leukocytes increased in BAL and in the blood of GES compared to the CG. There was an increase in the formation of thiobarbituric acid reactive substances in homogenized lung GES compared to GESTS. Regarding the antioxidant enzymes, there was increased activity of catalase in GES and GESTS groups when compared to CG and the superoxide dismutase (SOD) showed increased activity in the GESTS group compared to the GES. In addition, GES showed a decrease in the total glutathione, in its oxidized and reduced fraction, when compared to CG. The surfactant showed anti-inflammatory and antioxidant properties in a short exposure model to cigarette smoke. ACKNOWLEDGEMENTS: Laboratory of Metabolic Biochemistry, UFOP and FAPEMIG. KEY WORDS: Surfactant, Cigarette smoke, Chronic obstructive pulmonary disease.