European Respiratory Society
Annual Congress 2013

Abstract Number: 6055

Publication Number: PP168

Abstract Group: 1.1. Clinical Problems

Keywords: no keyword selected

Title: LSC 2013 abstract - Roles of polarized neutrophils on lung tumour cells engraftment in an orthotopic lung tumour mouse model

Natacha Rocks [1], Sandrine Bekaert [1], Geoff Warnock [2], Christelle Sepult [1], Jean-Michel Foidart [1], Agnes Noel [1] and Didier Cataldo [1]. [1] Laboratory of Tumor and Development Biology - GIGA-Research, University of Liege, Liege, Belgium and [2] Cyclotron Research Center, University of Liege, Liege, Belgium .

Body: Lung cancer is a deadly disease and results of current treatments are deceiving. Many research groups are focusing on development of new treatment schemes which might be associated to unpredictable side effects. Working with a non invasive, reproducible and rapidly successful animal model has therefore become a priority. It has become evident that inflammation can contribute to enhance progression of a benign tumour to a malignant phenotype. Neutrophils represent an essential part of the innate immune system, suggesting their important functions in tumour biology. The aim of this study was to develop a non invasive orthotopic mouse model of lung tumours. LLC tumour cells were intratracheally injected with or without a pro-inflammatory agent to enhance tumour development. We found that neutrophils induced by an agarose-induced inflammation, but not by LPS, are able to enhance lung tumour take. Neutrophils isolated from lungs of mice stimulated by agarose display more often a N2-protumoral phenotype when compared to neutrophils isolated from LPS-challenged lungs. Higher levels of β2-integrin are measured in agarose-induced lungs and therefore an increased number of interactions of neutrophils expressing β2-integrin with ICAM-1 molecules present on epithelial pulmonary cells might be hypothesised. We propose that N2-neutrophils induced by agarose stimulation enhance lung tumour cells anchorage on the airway epithelium by bridging the tumour cells with the epithelium. We provide in this study the evidence that inflammation triggers lung tumor anchorage and development. However, inflammatory agents inducing N2-type neutrophils seem mandatory for a protumoral effect.