Abstract Group: 3.1. Molecular Pathology and Functional Genomics
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Title: Preliminary study to evidence potential adult pulmonary stem cells on endoscopic transbronchial biopsy

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Body: Background Experimental investigations detected the existence of pulmonary stem cell niches with renewal, clonogenicity and multipotential proprieties, both in vitro and in vivo, localized on distal airways. Kumar et al. reported that p63+ basal cells of distal airways act as adult stem cells in murine models of ARDS due to H1N1 infection. After damage these cells radiate to interbronchiolar regions, assembling into Krt5+ pods and initiating expression of alveoli markers. The identification of these human cells could be obtained by surgery specimens or more easily by bronchoscopic procedures. Objectives Investigate the presence of putative pulmonary adult stem cells (p63+ and Krt5+) in patients with different lung diseases using a minimally invasive and repeatable technique, the transbronchial biopsy (TBB) obtained during usual fiberoptic bronchoscopy. Methods 31 TBBs from patients with different lung diseases (18 lung cancers, 5 lung lymphomas, 4 interstitial lung diseases, 2 lung metastasis, 1 mediastinal adenopathy, 1 lung infection) were selected and processed to immunohistochemistry (IHC) using Lung squamous 2TM (Bicare Medical, Concord, CA, USA). Results 14 out of 31 samples were suitable for IHC analysis. 4 samples (12,9%) showed p63+ and Krt5+ cells, two of these (6,5%) presented presumed stem cells niches in patients with MALT lymphoma and undifferentiated squamous cells carcinoma. Conclusions We identified potential stem cell niches in a few TBBs. Nowadays TBBs don't seem suitable for investigation of potential adult stem cells in lung tissues. We recognize that the limitation of our study is the sample size and to confirm our results a larger case study should be analyzed.