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Title: Senescence marker protein-30 decreases oxidative stress in human lungs of smokers with chronic obstructive pulmonary disease

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Body: Introduction: Senescence marker protein-30 (SMP30) reportedly protects mice lung from oxidative stress associated with smoking. Little is known about the presence of SMP-30 in lungs of chronic obstructive pulmonary disease (COPD). Methods: Lung tissue was examined from 47 subjects undergoing resection for peripheral lung tumors as follows: current smokers with (n= 9) and without COPD (n= 7), ex-smokers with (n= 8) and without COPD (n= 8), nonsmokers with (n= 7) and without COPD (n= 6). SMP-30 was investigated by immunohistochemistry in lung tissue specimens and Western analysis, qRT-PCR in total lung homogenates. Morphologic evaluations of the lungs, glutathione, malonaldehyde (MDA), interleukin-8 (IL-8) and tumor necrosis factor- α in the lung tissues were determined. Results: Weak SMP-30 protein was localized predominantly in the cytoplasm of bronchial epithelial cells. A notable decline of SMP-30 mRNA and protein was found in lung tissue of patients with COPD compared to healthy subjects ($P < 0.05$), also in smokers and ex-smokers with or without COPD when compared with spirometry matched nonsmokers. Inverse correlation was observed between SMP-30, MDA, IL-8 and alveolar destructive index ($P < 0.05$). Conclusions: SMP-30 decreases oxidative stress from smoking and pulmonary inflammation, which may contribute to protecting smokers from susceptibility to the development of COPD.