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**Title:** Concentration of sFas in bronchoalveolar lavage fluid of smoking patients with sarcoidosis

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**Body:** Sarcoidosis (SA) is a multiorgan granulomatous disease of unknown etiology. SA is more prevalent among non-smokers. The postulated protective role of smoking on inflammation in SA remains enigmatic. Fas/FasL system is assumed to participate in the regulation of immune response and granuloma formation in SA. Soluble Fas (sFas) is known to inhibit Fas-induced apoptosis. In previous study we reported an elevated number of Fas positive cells in the bronchoalveolar lavage fluid (BALf) of smoking sarcoidosis patients. The aim of this study was to find out whether sFas concentration in BALf differs between ever smoking (S) and never smoking (NS) patients with sarcoidosis. We investigated 57 patients with confirmed SA: 36 NS and 21 S. Total and differential cell count in the BALf samples were performed according to standard methods. The sFas concentration was measured by ELISA. There were significant differences in BALf composition between S and NS. The total cell count and the percentage of macrophages were significantly higher among S than among NS (11.3 vs. 6.5 x10<sup>6</sup>, 62 vs. 50%, respectively), while the percentage of lymphocytes was significantly lower among S than among NS (29 vs. 41%). The sFas concentration was lower in the BALf of S compared with NS (median values 68.3 vs 95.5 pg/mL, p=0.09). Furthermore, the sFas concentration among active smokers was significantly lower than among NS (65.6 vs 95.5 pg/mL, p=0.01). We found out that sFas concentration is reduced in the BALf of smoking sarcoidosis patient. Lower sFas concentration may result in higher apoptosis rate of inflammatory cells, thereby promoting granulomatous inflammation resolution.