Body: Background: COPD is characterized by accumulation of T cells in the lung. Recruitment is regulated by chemokines binding to receptors on the cell surface. We studied the expression of chemokine receptors on T cells from neversmokers, smokers with normal lung function and COPD patients. Methods: Thirtyseven neversmokers, 38 smokers with normal lung function and 32 COPD patients, GOLD stage I-II (23 smokers and 9 exsmokers) underwent BAL (5x50 mL). BAL and blood T cells were analysed for CD3, CD4 and CD8 in combination with the activity marker CD69 and the chemokine receptors CXCR3, CCR4 and CCR5 using multicolor flow cytometry. Results: The percentage of CD4+CD69- (non-activated) T cells expressing CXCR3 was significantly lower in BAL from "normal" smokers and from COPD smokers compared to neversmokers (p<0.001 and p<0.05). CD4+ T cells from "normal" smokers had significantly higher median fluorescence intensity (MFI) of CCR5 compared to neversmokers (p<0.05). An increase, albeit not significant, was also observed in COPD patients who were current smokers. The expression of CXCR3, CCR4 and CCR5 on CD8+ T cells in BAL did not differ. In blood from COPD patients (both current and ex-smokers), we observed a higher percentage of activated (CD69+) CD8+ T cells expressing CXCR3 compared to "normal" smokers (p<0.05 for both). Conclusions: The lower percentage of CD4+CD69-CXCR3+ T cells and the higher MFI of CCR5 on CD4+ T cells in BAL from both smoking groups seem to be related to smoke exposure per se, rather than the degree of airway obstruction. This was not observed in COPD exsmokers, indicating that both smoking history and current smoke exposure affect the expression. Analysis of soluble ligands for CXCR3, CCR4 and CCR5 is in progress.