

**LTRC Concept Sheet # 08-99-0040**  
**Immunohist-chemical localization of Novel Proteins**

**ABSTRACT**

As described in our annual report, we were unable to achieve our original goals in proposal # 06-99-0001 “Airway Smooth Muscle Remodeling in COPD” because we found that there was in an insufficient number of smooth muscle containing airways in the majority of subjects’ tissue blocks to allow accurate quantification of airway smooth muscle. In fact, 23/54 subjects had no smooth muscle containing airways at all.

We have, however, several paraffin sections that remain (1-4 per subject) and find that there are numerous lung macrophages present in these samples. We have previously identified a distinctive alveolar macrophage activation state associated with cigarette smoking (Woodruff AJRCCM 2005) and have recently acquired or developed antibodies to novel genes that are induced at the gene expression level in macrophages from smokers. The paraffin sections that would be ideally suited for these proteins are over-expressed in alveolar macrophages from patients with COPD as a way to extend these very informative genomics studies. These studies would be instrumental in opening up new avenues of research in a cell type that is directly relevant to the pathogenesis of emphysema. We propose to use the remaining specimens for this purpose based on the discretion of the LTRC and NIH. We believe this approach would make maximal use of existing samples.