

**LTRC Concept Sheet #09-02-0002**

**Extracellular Superoxide Dismutase in COPD**

**ABSTRACT**

Chronic obstruction pulmonary disease (COPD) is the fourth leading cause of death in the world and is a major public health problem due to its associated disability and health care needs. It is primarily related to tobacco smoke exposure but other inhalational exposures also appear to increase the risk of disease. Several genetic studies have identified an association between extracellular superoxide dismutase (EC-SOD or SOD3) polymorphisms and altered risk of COPD {Juul, Tybjaerg-Hansen, et al. 2006 #11070} {Dahl, Bowler, et al. 2008 #26400}, leading to greater scrutiny of what functional role EC-SOD may play in the disease pathogenesis.

We have measured serum EC-SOD levels in COPD subjects and controls, finding that EC-SOD is a significant predictor of disease state after controlling for age and pack-years of smoking (unpublished results). We postulate that EC-SOD tissue distribution may be altered in COPD and may vary in different stages of the disease. We propose to do immunolocalization of EC-SOD in human lungs with COPD compared to subjects with ILD and also compared to previous work done with normal human lung tissue.