

## 2005 SSF Student Fellowship

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*Characterization of 4-hydroxy 2-nonenal modified proteins in Sjögren's syndrome patient sera using two dimensional gel electrophoresis*

### **Scientific Abstract:**

Sjögren's syndrome (SS) is a chronic inflammatory, autoimmune disorder characterized by diminished lacrimal and salivary gland secretion (sicca complex) resulting in keratoconjunctivitis sicca and xerostomia. Previous investigations from our laboratory revealed increased oxidative damage in systemic lupus erythematosus (SLE) sera. **Based on our findings, we hypothesize that increased oxidative damage will be observed in SS patients compared to controls, in the form of oxidatively modified serum proteins. Proteins altered in this manner could act as neoantigens and elicit autoantibodies and thus may trigger autoimmunity. This proposal will investigate the role of oxidatively modified proteins in SS using two dimensional gel electrophoresis and matrix assisted laser desorption/ionization time of flight mass spectrometry. This proposal will also characterize protein profile differences between SS and normal subjects using similar techniques.**

### **Lay Abstract:**

Sjögren's syndrome (SS) is an autoimmune disease in which the immune system targets the salivary and lacrimal glands resulting in dry mouth and dry eyes. Free radical mediated oxidation of lipids has been found to be involved in many diseases. End products of lipid oxidation have the ability to bind to proteins. We have found proteins modified by the lipid oxidation product 4-hydroxy-2-nonenal (HNE) in lupus patient sera. This research aims to identify (a) HNE modified proteins in SS patients using two dimensional gel electrophoresis (2-DGE) and (b) protein profile of SS patient sera compared to normals by 2-DGE.